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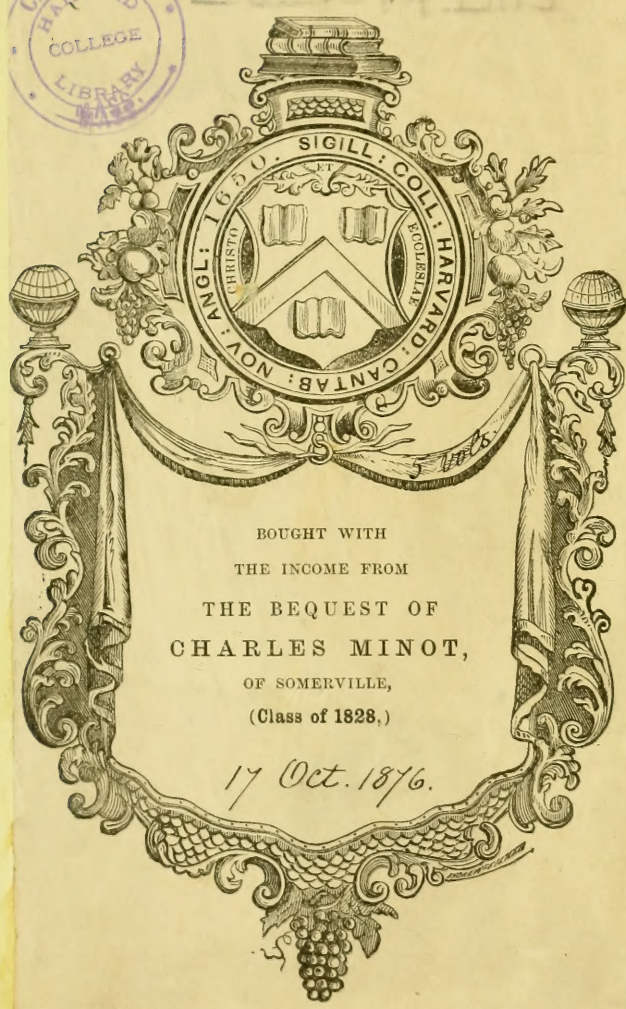


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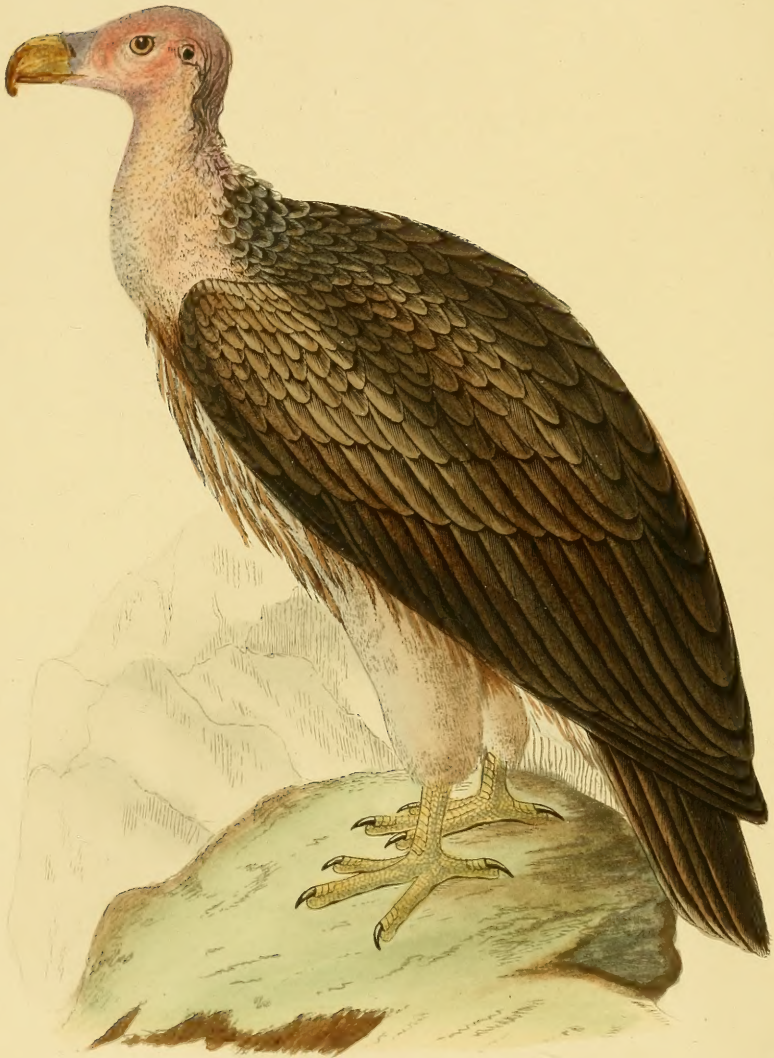
BIRDS OF EUROPE.

SECOND EDITION, ENLARGED.

IN FIVE VOLUMES.—VOL. I.







NORTHERN SOCIABLE VULTURE.

©

A HISTORY

OF THE



BIRDS OF EUROPE,

NOT OBSERVED IN THE BRITISH ISLES.

BY

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Author of "Species Not Transmutable," "Lower Forms of Life," "An Exposition of Fallacies in the Hypothesis of Mr. Darwin," &c., &c.

SECOND EDITION, ENLARGED.

VOL. I.

"Join voices all ye living souls; ye birds
That singing up to heaven-gate ascend
Bear on your wings and in your notes His praise."

MILTON'S PARADISE LOST.

2

LONDON:

GEORGE BELL AND SONS, YORK STREET, COVENT GARDEN.

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~~Trinity, 10-11-19, 10-11-19~~

1874, 1875, 1876

1877, 1878, 1879

(1874, 1875, 1876)

TO MY DEAR WIFE

FRANCES ELIZABETH BREE,

WHO IN THE PROSECUTION OF THIS WORK

HAS RENDERED ME MOST VALUABLE ASSISTANCE,

THESE VOLUMES ARE

WITH MUCH AFFECTION

DEDICATED AND INSCRIBED

BY

THE AUTHOR.



PREFACE TO SECOND EDITION.

ELEVEN years have passed since my "History of the Birds of Europe not observed in the British Isles" was completed in four volumes, and the large edition then printed having been sold, another is demanded.

It is very gratifying to find that my efforts to advance the knowledge of European ornithology have been so successful. In responding to the demand for a second edition, I should be ungrateful to my many friends did I not use every exertion to make it as perfectly up to the knowledge of the present day as possible.

Eleven years is a long time in the history of modern science, and many and extensive alterations have been requisite. Some birds have been altogether omitted, either because their occurrence in Europe has been never definitely proved, or having become undoubted visitors to the British Isles, they will in future belong to the historians of British ornithology. I have taken the liberty of exercising a discretion in this matter, for the record of a straggler to these isles cannot always be supported by the requisite proof, nor the appearance of a single individual deemed sufficient to exclude it from my work.

It is impossible to give a complete list here of either of these classes of omissions, but I may state that among the first category will be found *Vultur auricularis*, *Aquila nævioides* (Cuvier), *Haliaeetus leucocephalus*, *Ixos obscurus*, *Emberiza striolata*, *Alcedo Smyrnensis*; and among those which have been introduced into the British lists I have omitted the following,—*Lanius minor*, *Muscicapa parva*, *Sylvia cœrulecula*, *S. succica*, *S. icterina*, *S. aquatica*, *Motacilla alba*, *M. cinereo-capilla*, *Anthus spinoletta*, *A. ludovicianus*, *A. rufescens*. Among the new birds which will be introduced into this edition, I may mention *Vultur nubicus*, *Falco barbarus*, *Aquila Adalberti*, *Aquila orientalis*, *Aquila Culleni*, Nov. Sp., “Striated Eagle,” *Otus capensis*, *Garrulus krynicki*, *Ruticilla moussieri*, *Hipolais polyglotta* and *H. pallida*, *Troglodytes borealis*, *Acredula Irbii*, *Alauda pispoletta*, *bœtica*, and *cantarella*, *Gecinus Sharpii*, *Picus Lilfordii*, and some others, of which a summary will be given at the end of the work.

With regard to the never-ending *vexata questio* as to species, races, or varieties, I have expressed my opinions freely here and there. Men who have not had the advantage of a sound knowledge of comparative anatomy make great mistakes in this direction. They would be pardonable did they not fill our works with useless, often barbarous names, which lead the student astray, and oftentimes make him give up the subject in disgust.

It may be desirable to figure and describe races and varieties, but they ought to be designated as such only.

Much confusion has also arisen in late years from the persistent habit of changing long-established names in

obedience to some real or assumed priority existing one hundred or one hundred and fifty years ago. The real object of names is to give the student a certain knowledge, and if a bird has been known for a long period of time by an established name, it is evidently absurd to alter it at the caprice of the writer.

These remarks do not apply with the same meaning to generic divisions, which must alter and become more numerous as the science progresses. I have therefore changed the nomenclature of Temminck for that which is in more general use in ornithology, though I have not hesitated to refrain from so doing when I have thought the circumstances did not warrant such a step.

The present edition will be published in five volumes, and I have again to thank those naturalists who have given me their kind assistance, among whom I may especially mention Mr. J. H. Gurney, Lord Lilford, Dr. Theodore Von Heuglin, the Rev. Canon Tristram, Colonel Irby, Mr. Savile Reid, Deputy Surgeon-General Stewart, Mr. Howard Saunders, Dr. Crowfoot, of Beccles, Professor Vanden-Nest, of the Zoological Society, Antwerp, Mr. Brooks, of Etawah, Leith Adams, M.B., and Mr. Bond.

Colchester, Dec. 21st., 1874.



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BIRDS OF EUROPE,

NOT OBSERVED IN THE BRITISH ISLES.

ORDER I.—RAPACES.

DIVISION I.—RAPACES—DIURNÆ.

Family I.—*VULTURIDÆ*.

Genus I.—*VULTUR*. (*Illiger.*)

Generic Characters.—Beak large, strong, and curved only at the end; nostrils opening crosswise; eyes even with the head; head and neck without, or only partially covered with feathers mixed with down. Vertebrae fifteen.

Sub-genus *Otogyphs*. (*Gray.*)

NORTHERN SOCIABLE VULTURE.

Otogyphs nubicus.

Vultur nubicus,

“ *auricularis*, *p.*,

“ *imperiales et ægyptius*,

SMITH.

J. R. GRAY.

TEMMINCK.

Specific Characters.—Neck covered with feathers close up to the throat. Throat and upper parts of the neck naked, and of a bluish pink colour. Nuchal flap sometimes more or less undeveloped. Feathers forming the ruff long and narrow; under parts dark brown, no white underneath. Length four feet and upwards.

In the first edition of this work I figured the *Vultur auricularis* of Daudin and modern authors, and its egg. I expressed then, however, a doubt about the propriety of admitting it into the European fauna, and this doubt has been more than confirmed by the experience of the last ten years. The Oricou of Le Vaillant is not a European bird.

In the north of Africa, however, there is another closely allied species—if it is even specifically distinct, which has occurred in Europe, and which it is therefore necessary to describe and figure here.

In the description of the first edition Mr. Gurney considered that *V. auricularis* was identical with the *V. nubicus* of Smith, and the *V. ægyptius* of Temminck. That gentleman has however now altered his opinion. He writes to me, "I have no doubt that the northern form of this Vulture has occurred in Europe. The only question is whether this northern form should be considered specifically distinct. Mr. Bartlett who has had much experience of both forms in the Zoological Gardens, believes them to be distinct, and now I am of the same opinion."

"The northern bird is always more clothed with short down on the head and neck, and those parts are less red than in the southern bird (*V. auricularis*;) the northern has a less average development of the flaps of skin on the sides of the neck." Subsequently I received the following letter from Mr. Gurney:—

"We have in the Norwich Museum three of these Vultures:—

- No. 1.—from Abyssinia,
- No. 2.—said to be from Algeria,
- No. 3.—said to be from Greece.

I have compared all these with your description, and find that it agrees with the following exceptions:—

First.—There is no down collar, although there is down mingled with the feathers on the upper side of the lower end of the neck.

Second.—No flap appears except in No. 1., and in this, as in *V. auricularis*, they are not what I should call 'nuchal,' but on the *sides* of the neck.

Third.—In Nos. 2 and 3, the head and bare parts of neck are sparingly covered with short white down.

In No. 1. only, the *roots* of the down are visible, leaving these parts apparently bare, as in the adult of *V. auricularis*.

Fourth.—In all three (as in *V. auricularis*) the chin has a tuft of long black bristles pointing downwards towards the breast, like the beard of *Gypaetos*, but less numerous and lying flat on the skin between the rami of the jaws.

Fifth.—All three specimens have a good deal of white down mingled with the brown down which covers the thighs, while our South African bird, which is probably immature (being without flaps) has the thighs wholly brown.

Sixth.—We have only one South African specimen of *V. auricularis*

in the Museum (that named above,) but in this, the ensiform feathers forming the ruff appear to me to be as long as those in the three specimens of *V. nubicus*.

Seventh.—Our three specimens of *V. nubicus*, and our one of *V. auricularis*, all have the crop which is encircled (except on the upper side) by the ruff, clothed with small, silky, brown feathers.

Eighth.—Our specimen No. 1., of *V. nubicus* seems to show that I was wrong in writing to you that the northern bird was *always* more clothed with short down on the head and neck than the southern bird, and also in saying that the northern bird never has any white on the tibial feathers.

In short, the difference between the two is very much reduced to this, that the northern birds *I have seen in confinement*, have had the head covered with down, and dull coloured, instead of having it red and bare (although our Abyssinian stuffed bird has it bare,) and that I have never seen the northern bird with the *large* flaps of skin on the side of the neck, which are occasionally, though not frequently, to be observed in specimens of the southern bird."

My friend Mr. Bond, at my request made a careful comparative examination of the southern and northern forms of the Sociable Vulture in the Zoological Gardens, and the following is his report:—

"The bird in the Gardens representing the southern form, has only the front of the neck, half way down, throat, and upper part of the head, bare. The other bird, the northern form, has only the throat and the head bare, the neck thickly covered with feathers.

I made the following notes as to two specimens.

First.—Southern bird (*V. auricularis*) has the head bare of feathers, the wrinkles on head and neck perhaps rather larger than in the northern bird; front of neck, bare for about half its length, the rest covered with feathers. At the back of the head and partly from the neck, there is a "ruff" or "mane" of feathers, the longest perhaps an inch and a half long. The outside of the thighs and side of body, pure white; inside of thigh, and under parts, dark brown, except the under tail coverts, which appear of a dirty white. I did not observe much difference in the legs and toes, the back was rather lighter in colour, but with their backs towards you both birds appear very much alike.

Second.—The northern bird (*V. nubicus*) has the neck quite covered with feathers (not down) close up to the throat; the throat and upper parts of the head only bare. The feathers forming the "ruff," or "mane," are very long and narrow, quite three to four inches long, and when the bird is asleep some of the feathers stand up, somewhat

as they do in the Eagle Owl. The under parts, including the under tail coverts, very dark, no white underneath. The feathers down the front of the breast, are very much longer in this bird than in the other. This bird has been eight years in the Gardens, the other only about a year."

I think the time has hardly arrived when we can pronounce these birds to be positively distinct species, but the claim of the northern form, *V. nubicus*, to a place in the European fauna is well established.

Of the occurrence of the Northern Sociable Vulture in Europe we have an instance quoted by M. Jaubert and Barthélémy, in their work on the "Ornithology of the South of France," of its capture at Arles, and another having nested in Spain, and they also state that there is a specimen preserved in the Museum at Marseilles which was killed in the Levant.

Mr. Gurney states there is a specimen, No. 4., in the Norwich Museum, which he has the authority of the late Monsieur Jules Verreaux for stating was killed in Greece. Temminck also gives Greece as a locality, but this is doubted by Count Von der Mühle and Linder-mayer.

The Northern Sociable Vulture has been well described by Von Heuglin, in his "Ornithologie Nord Ost Africas," which I will transcribe:—

"The Sociable or Eared Vulture is scarce in the most northern part of Egypt, tolerably frequent in the middle and northern provinces, common in Nubia, in North Kordofan and Senar, Takah, and the whole of Abyssinia, where it is found as high as twelve thousand feet above the sea. It is not found in the middle and upper regions of the White Nile, and is only seen occasionally on the coast of the Red Sea. The Eared Vulture is a stationary bird, and, like most of the tribe, it lives in companies. It rests at night on rocky mountains, often very far from the districts which constitute its hunting quarters during the day. In woody districts it will settle in trees which have bare branches or tops, allowing it some extent of view around. If not much disturbed, the bird is not shy; indeed, it will often settle in the neighbourhood of villages, about the matted tents of the nomadic tribes, and near the encampments of caravans. With quiet and stately flight, the Eared Vulture makes wide circles, and often so high in the air that the eye can scarcely descry it. When they find a dead animal (which cannot escape their powerful organs of sight), they descend in spiral lines on to the ground some little distance from the carrion. They then spread out their wings again, and with outstretched neck, rush, with droll jerks and sometimes with a kind of scream, upon their prey. A single

bird will often carry away a body which does not weigh more than twenty pounds. It drives away all intruders with blows of its wings, and tears off and devours greedily large strips of skin and flesh. After its meal the Eared Vulture seeks a means of quenching its thirst, and Hartmann says he has observed them up to their necks in water. It then plumes its feathers and suns itself for a long time, lying on the sand or sitting on an elevated spot, frequently opening one or both wings, which it allows to droop lazily, while the neck is slightly drawn in. It then retires to an elevated rock, where it rests for a much longer time. On rising from the ground it is obliged to run forward with springs and bounds till its strong wings catch the wind, which is accompanied by a dull, rushing sound. These birds, powerful as they are, can endure hunger for many days; but they are then able to devour enormous quantities of food. I never found bones in their crops. They are easily accustomed to captivity, but remain mostly for a long time mournful guests, whom the keepers cannot always trust. The beautiful, composed, and haughty eye follows the visitor and all his movements unceasingly, without the creature altering its position. If we only see caricatures of the Eared Vulture in our zoological museums, it is because of the impossibility of preserving the head and neck in its original beauty.

The bluish flesh-colour of the skin of the head is mostly quite bare, and only here and there sprinkled with furry down. Over the back of the head and neck thick folds of skin, which can be moved at pleasure, lie close to each other in undulating rows. The flap of skin which hangs down from the ear on the side of the neck is often considerably enlarged and unattached below. I think I have observed this caruncular appendage much larger in captivity. When in perfect condition, the skin of the head is visibly swollen or raised up, and is of a darker colour and more varied. The folds of skin disappear partly in the raising and throwing forward of the neck. The young bird shows a longer and narrower ruff round the neck, and a thicker covering of feathers over the lower part of the body. There is a specimen in the Stuttgart Museum which has the base of the neck and the interscapular feathers of a pale greyish blue, as well as some of the small wing coverts partly so. The fawn-coloured brown of the feathers on the crop visibly advances further to the front of the neck; the sides of the neck in front down to the breast bone are, as in the Cinereous Vulture, covered with long whitish down."

Some interesting remarks about this bird, will also be found in Mr. Gurney's "*Raptorial Birds in the Norwich Museum.*"

The nidification of the Northern Sociable Vulture, is thus described by the Rev. Canon Tristram, "Ibis," vol. i., page 282:—

"This bird did not often come under my observation, but is a constant resident in the Sahara, though in very limited numbers. While the Griffon breeds throughout the Atlas, the Nubian seems to resort to more southern ranges for his eyrie. There is a breeding place to the south west of Biskra, in some lofty isolated cliffs, and another near the stupendous gorge of El Kantara, where I have watched these birds with the telescope. The heavier build, larger size, and short, stout neck and head, render this bird distinguishable at a glance from the Griffon, the plumage also appeared to me to be darker; but I am inclined to think that the hues of all Vultures change much according to age. I noted three or four among the precipitous ridges between the Nizab country and the Oasis of Waregla, in lat. 32° N., and I was told by the natives that they remained there all the year. As we saw them in December, it is probable they breed in these cliffs. Their habits seem precisely similar to those of the Griffon."

There is an egg of this Vulture figured in the "Proceedings of the Zoological Society for 1853," having a white ground, but thickly marked with irregular blotches of various shades of brown, especially towards the larger end.

Mr. Gurney, from whose little treatise on Raptorial Birds I make the above quotation, informs me that he has two eggs in his possession, sent to him by the late E. Verreaux, as those of *V. nubicus*; both are entirely white. One of them, stated to have been taken in Greece, I have figured. The bird is taken from one of the specimens in the Norwich Museum, kindly drawn for me by Mr. Reeve.



NORTHERN SOCIABLE VULTURE.



CINEREUS VULTURE

RAPACES—DIURNÆ.
Family I.—VULTURIDÆ.
 Genus I.—VULTUR.

CINEREOUS VULTURE.

Vultur monachus.

<i>Vultur monachus,</i>	LINNÆUS. GMELIN.
“ <i>cinereus,</i>	GMELIN. LATHAM. TEMMINCK.
“ “	SCHLEGEL. DEGLAND. GOULD.
“ <i>Bengalensis,</i>	LATHAM, (<i>young.</i>)
“ <i>fuscus,</i>	BREHM.
“ <i>cupido,</i>	HODGSON.
<i>Gyps cinereus,</i>	BONAPARTE.
<i>Vautour ou Grand Vautour,</i>	BUFFON.
<i>Vautour arrian, and V. cendre,</i>	OF THE FRENCH.
<i>Grauer Geier,</i>	OF THE GERMANS.
<i>Avoltoio Lepraiolo,</i>	OF THE ITALIANS.

Specific Characters.—Head thick and large; nostrils rounded; legs covered with feathers. Internal toe much shorter than half the middle toe; twelve quills in the tail. Length three feet six inches.—DEGLAND.

THE Cinereous Vulture is stated by M. Temminck to live solely among the vast forests of Hungary, the Tyrol, the Pyrenees, the middle of Spain, and in Italy. In all other places its appearance is accidental. This, however, is not correct, as it certainly is by no means rare, and breeds every year in considerable numbers in the Dobrudsha. It is also not uncommon in Greece, and, according to Dr. Erhard, it breeds in the Cyclades. It has been observed in Russia, in Provence, Languedoc, and, according to Lord Lilford (“Ibis,” 1860, p. 2,) is common in Sardinia. M. Schinz says that he did not find it in Switzerland; neither has it been found there by M. Tschärner, who lives near Berne, although recorded by Bailey as occurring there

rarely. It is found rarely in Germany, Dalmatia, Denmark, Poland, Savoy, Sicily, Austria, and Palestine. A large flock, according to M. Degland, was observed to pass over the environs of Angers in October 1839; a larger number having been observed at the same place and season two years before. Both flocks appeared to come from the northward, and to wend their way towards the Pyrenees. It occurs in India and rarely in Egypt, Nubia, and Algeria, although Dr. Rüppell says it is not found in Africa at all. It occurs at Gibraltar.

Like most of its tribe, the Cinereous Vulture feeds upon carrion. M. Temminck says that it does so exclusively, and that it flies away in fear from the smallest live animal. Bechstein, on the contrary, says that it attacks in the winter, hares, sheep, goats, and even deer. It can detect its food from a great distance, probably by its acute vision equally with its supposed exalted sense of smell.

The following account of the breeding habits of this bird is from Mr. A. S. Cullen, whose ornithological zeal is well known, and who has extensive knowledge of the birds in the Dobrudsha:—"This bird never lays but one egg. I have found upwards of thirty nests with eggs and young, but in no instance did I find more than one egg or one young one in one nest. Throughout the Dobrudsha the Cinereous Vulture always breeds on trees, never on rocks. The tree chosen for the nest is mostly an oak—often a low one. Sometimes, however, a wild pear is the tree fixed upon. The eggs vary greatly. They are generally of an unspotted white, or white spotted, washed, or blotched with rusty brown, or spotted with the colour of dried blood. One pretty common variety is of a dirty white, covered with moderate-sized blotches of reddish lilac, partly surrounded by an irregular rim of light russet brown, and sparingly spotted with small spots of dried blood colour. Varieties of a white ground, covered entirely with a rich russet brown, in which the white ground only appears in small patches, occur now and then, but very rarely. The colour in this last variety, and indeed in all russet-coloured examples, comes off readily on the application of water; but the colour in the lilac or greyish varieties does not come off easily. When blown soon after being taken from the nest, the eggs have a strong scent of musk, and this clings to them for a long time."

In the first edition of this work, vol. i., p. 8, I stated, on the authority of Degland, that the Cinereous Vulture "builds its nest among the most inaccessible rocks....It lays two eggs, pointed alike at both ends, of a dirty white, without spots, and a rough surface." Mr. Farman ("Ibis," vol. iv., N.S., pp. 407-8) gives the same account as Mr. Cullen of the locality in which the nest is built, and he adds

that he never found but one young bird in the nest; and, being always too late, he only got a single example of the egg, which was all the nest contained. Temminck also leaves out Bulgaria altogether as a European locality for this bird, which makes the accounts given us by Mr. Farman and Mr. Cullen more interesting and valuable. The birds begin to build in March, and Mr. Farman adds, "I have invariably seen the nest placed on a tree, and generally on one of no great size. The nest is generally placed about twenty feet from the ground."

It does not follow, if the Cinereous Vulture builds on trees in Bulgaria, that it does the same in countries where trees are scarce and inaccessible rocks the rule. A late communication in "The Field" about the Kestrel, a well-known tree-breeder, building its nest in rocks, bears upon this subject. Jaubert, who in his "Richesses Ornithologiques" gives a most beautiful figure of the bird, says nothing about the locality of the nest, but gives two as the number of eggs which the bird lays, and his description shows that he is familiar with the egg. He says the bird breeds in the Pyrenees. Temminck states in his Manual that the propagation of this bird was unknown, and it is, in fact, only during the last few years that its egg has been found in collections. Lord Lilford ("Ibis," vol. ii., N.S.), in one of his most interesting papers on the "Ornithology of Spain," describes the nest as situated on the top of one of the tallest pines, and as composed of "large boughs externally lined with twigs and a few fragments of wool." This nest, and several others found by his lordship, contained a single young one.

Lord Lilford also informs us that his collector, Manuel, has occasionally found two eggs in the nest. The following is from a paper by Lord Lilford ("Ibis," 1866, p. 389):—"The nest was situated at the top of one of the tallest pines, and was visible from some distance, with the male bird seated close to it. He allowed us to approach almost to the foot of the tree, and sailed off, apparently unhurt by a volley of our four barrels. Agapo was soon up to the nest, in which was a young bird about the size of a Dorking cock, which made strong demonstrations of hostility to the human form divine. Agapo, however, soon overcame his scruples, and lowered him tethered by the legs to the ground, where we received him with every attention. A more unsightly specimen of the great class *Aves* I never before beheld: he was covered with brownish grey down, with a bright pink cere, and very pale yellow legs and feet; part of the trachea of a sheep or goat, perfectly hard and dry, completely encircled one leg."

The following is from notes kindly lent me by Mr. Savile Reid, R.E., stationed at Gibraltar:—"May 20, 1873. Josè came in this morning with a fine young Cinereous Vulture, from the hills beyond Los Barrios; it was about the size of a goose; the quills and tail feathers only a few inches long, and the ruff or frill small, though clearly defined. I made him a nest of straw in the corner of a spare room, where he lay perfectly at ease, and devoured about half a pound of flamingo with considerable gusto! He gave out a very faint and pleasant odour of musk, like the old birds and the eggs, and showed himself altogether a most aristocratic bird for a Vulture. I hope to bring him up to maturity, and find him an interesting pet."

This hope was unfortunately not realized, as the poor bird broke its leg and was destroyed. It is worthy of note that he took thirty drops of Prussic acid without effect.

It does not appear to be either a cowardly or a stupid bird. M. Degland mentions an instance in which one in confinement answered to the voice of its master, and defended itself with courage against some small dogs which tried to bite it. M. Bouteille also, in a note to his "Ornithology of the Dauphine," relates an instance of one of these birds, which in confinement became so familiar as to call for its food. It however once escaped into his establishment and seriously wounded two men.

I have a series of twelve eggs of this bird from the Dobrudsha in my collection. They are not so highly coloured as some of those brought over by Lord Lilford and Mr. Howard Saunders from Spain. They vary in size from three inches and eight tenths by two inches and eight tenths, to three inches and three tenths by two inches and eight tenths.

I figure two specimens from my collection which will give a correct idea of the variations in this egg. The smallest in my collection is white, thinly but distinctly spotted with dark purple.

The bird has been well figured in most works on the Birds of Europe; most recently by Sharpe and Dresser, "Birds of Europe," vol. ii.

It has been considered by Mr. Bennett and Mr. Gould that the Cinereous Vulture deviates in structure from the true Vultures, and that it might form with *V. auricularis* and *V. pondicerianus* a distinct genus. These three birds have the neck only partially bare, their ears more open, the claws more curved, and their beak more powerful. The figure in Gould is very fine and exact.

The male and female have all the plumage dark brown or blackish. Top of the head covered with a tufted and woolly down; part of



CINEREOUS VULTURE.

the head and neck naked, and of a livid bluish colour; feathers long and curved, re-ascending obliquely from the inferior part of the side of the neck towards the nape; other feathers loose and light, covering the insertion of the wings. Cere and sides of the posterior half of the beak flesh-coloured, with a violet tinge; tip of the beak and claws black; iris brown. Legs covered with feathers above, the remainder naked and bluish, like the naked part of the head and neck, but of a clearer tint.

Young bird, brown, inclining to fawn-coloured; centre of the feathers darker, the head and neck covered with a bluish grey down.—(Degland.)

In the natural order of arrangement the *Vultur Kolbii* of Daudin, *Le Vautour Chassefiente* of Temminck, would follow the bird just described. M. Temminck considered that the species was quite distinct, and always to be distinguished, at all ages, by the form of the feathers of the wings of the superior parts, which are all rounded at the end,—whilst these same feathers in the Griffon Vulture are long and pointed; the ruff is also not so long or so thick. The general colours of the plumage is often that of a clear ‘café au lait,’ and according to age varied into a light or dark brown. The adult is nearly entirely of a whitish dove-colour, whilst the plumage of the adult Griffon is of a uniform light brown. The crop of a dark brown; head and neck covered with a thick down. Total length, four feet.

Later writers, however, have considered that the *Chassefiente* of M. Temminck, is only a variety of the Griffon.

Dr. Rüppell, in reviewing the species of the genus *Vultur* of modern ornithologists, in the “*Annales des Sciences Naturelles*,” and the “*Bulletin des Sciences Naturelles*,” separates the *Chassefiente* from *V. Kolbii*, and states that the latter is not found in Europe. Schlegel does not admit *V. Kolbii*, but notices what he calls a race, or permanent variety of the Griffon, under the name of *Vultur fulvus occidentalis*; while Degland states his positive conviction that the differences given by Temminck, are those of age only; that the supposed *V. Kolbii*, said to have been killed in Sardinia, and sent to M. Hardy, of Dieppe, by Temminck himself, is a veritable adult *Vultur Griffon*; and that he has seen other skins in Paris, upon which a high price was fixed, in which he could find no characters essentially different from those of the *V. Griffon* he had received from Bayonne and de Bagnères-de-Bigorre, or which he had examined in various collections. Under these circumstances I shall omit the *V. Kolbii* from the list of European Vultures.

RAPACES—DIURNÆ.

Family I.—VULTURIDÆ.

GENUS II.—GYPAËTUS. (*Storr.*)

Generic Characters.—Head and neck covered with feathers; claws slightly curved; beak very strong, upper mandible elevated and curved at the end; nostrils oval. Feet short, the three anterior toes united at their base by a membrane; middle toe very long. Wings long; first quill shorter than the second, the third longest. Vertebrae thirteen.

BEARDED VULTURE.

Gypaëtus barbatus.

<i>Gypaëtus barbatus,</i>	CUVIER. TEMMINCK.
“ “	GOULD. SCHINZ.
“ “	BONAPARTE.
“ <i>leucocephalus et melanocephalus,</i>	MEYER AND WOLFF.
“ <i>aureus,</i>	RAY.
<i>Vultur barbatus,</i>	LINNÆUS.
“ <i>niger et alpinus,</i>	BRISSON.
“ <i>barbarus et barbatus,</i>	LATHAM.
<i>Falco barbarus et barbatus,</i>	GMELIN.
<i>Phene ossifraga,</i>	SAVIGNY. VIEILLOT.
“ “	LESSON.
<i>Lammergeier</i> or <i>Bartalder,</i>	OF THE GERMANS.
<i>Avoltoio barbutio,</i>	OF THE ITALIANS.
<i>Gypaëte barbu,</i>	OF THE FRENCH.

Specific Characters.—Base of beak above as well as below covered with stiff hairs. Length four feet seven inches.—DEGLAND.

THE Lammergeyer, or Lamb-slayer, is becoming one of the rarest birds of Europe, though at one time it was found in plenty by the chasseurs of the Swiss mountains and the Tyrol. Its predatory habits



BEARDED VULTURE.

mark it as an object of destruction, and in obedience to what appears a natural law, like the Red Indian, it disappears before the march of civilization. Its home is in the wildest and most lonely parts of the grand mountains in the Indian and European continents. The traveller from the Himalayas meets with it again in the dreary Caucasus, as well as in the rocky heights of the Tyrol, or the gloomy grandeur of the snow-capped Alps. It is found in Egypt, Syria, Algeria, at the Cape of Good Hope, and in Siberia. It is rare in Switzerland and Germany, though still not uncommon in Sardinia. Occasionally it is found in France, and is not uncommon in Spain and Portugal.

This bird forms the natural passage from the Vultures to the Falcons. Like the latter it feeds upon living prey, and the neck is covered with feathers. On the other hand, its alliance with the Vultures is strong and decided—in the form of its beak, and in the disproportionate strength of its talons to the size of the body. It also has its eyes even with the head, its wings are extended when at rest, and the crop when full projects at the bottom of the neck.

Von Heuglin in his "Ornithologie Nord Ost Africas," writes of the variety called *Meridionalis*, whose habits are similar to its congener, as follows:—

"The principal habitat of the Bearded Vulture (*Gypaëtus barbatus*) is in rocky mountains, from whence it does indeed fly away here and there to warmer and more level districts, which, however, it never selects as its constant home. It prefers dreary points of rocks, near the icy regions, to every other, and there it builds its eyrie, and from thence it rises so high in the air that it appears to the keenest eye only a tiny speck in the blue ether. Our learned men from the studio describe the Bearded Vulture as a cunning robber, who boldly seizes upon large mammals—even upon men—and tries to knock them down. We have had the opportunity of observing this bird daily for a long time in our immediate neighbourhood, we have killed many dozens of them, and upon dissection, to our astonishment, we have found that their food consists exclusively of bones and other remains from the slaughter-house. Only in case of urgent necessity will it feed upon dead men or animals, hunt down a monkey, or take away a sick or wandering goat.

Like the Raven, it occasionally stalks about and hops sideways on the green meadows of the highlands, lying wait for the rats so numerous there. This bird has nothing in common with the Vulture proper, but rather with the Neophron as to its attitudes and movements, especially on the ground. In the early dawn of morning the Bearded Vulture leaves its rocky home, and roves far and swiftly over fields and villages to the valleys—often flying as quick as lightning, so that

we can plainly hear the stormy rush and almost metallic resonance of its wings. It circles round a market place, where animals are usually killed, or follows the camp and tracks of armies with other birds of prey. Thus it was not observed during the first months of our residence in the Bogos lands; but when the Abyssinian troops arrived it came with them, and disappeared with them as they marched onwards.

During the march of King Theodore against the Galas, dozens of these birds were seen as constant followers of the troops. They kept together, however, more in pairs with their young ones, and did not mix with other Vultures and Ravens. After feeding, these birds rest either on a point of rock or raise themselves, especially in fine weather, in spiral circles high in the air. I never saw them build. The young ones pipe when they fly like Buzzards.

I have not been able to make any observations on their nidification. The time of hatching is in the middle of summer. Some ornithologists have concluded that there are two kinds of Bearded Vulture, one of a rusty colour underneath, and another white. As is well known, however, the rusty colour, which is deep in front of the neck and breast, may be in a great measure removed by simply washing and rubbing, as Drs. Murs, Meves, and myself have proved. Meves considers this mechanically attracted colour as resulting from ferruginous springs in which the birds bathe; and De Murs believes it, as *Gypaëtus* originally lays white eggs, which are coloured during incubation—a view which Hartmann seems to close in with.

We have, indeed, never seen a Bearded Vulture with clear white underparts, but have constantly found that the red colour disappeared in moulting, and was not replaced.

The Bearded Vulture of the south is to be distinguished from that of the north and east by its rather smaller size, and the more lively colouring of the neck and under parts; and also, and principally, by the absence of the posterior tarsal feathers, and their shortness (not reaching to the toes) in front.

What Tschudi tells us in his "Animal Life of the Alpine World" of the habits of the Bearded Vulture, I do not find confirmed in Africa. On the contrary, they differ greatly. This bird does not readily become tame. It does, indeed, soon learn to know its master, but remains ever a melancholy, grave, and quiet bird, allowing itself to be fed with flesh and bones for years in a cramped dwelling.

It cares little for birds or fish, and would remain hungry all day rather than disturb poultry or pigeons. It crunches bones with amazing ease. Smaller animals it swallows whole, and when obliged to put up with birds it first tries to break them up and open them."

Lieutenant-Colonel Delmè Radcliffe writes to me from Fort Attock, India, March 25th., 1869:—

“We frequently see the Lammergeyer sailing about within gunshot of the fort—one or two at a time generally after a storm; but any day when I go up to the higher ground after oorial I see several sailing about the peaks, though the highest points are only two thousand one hundred feet high (in the Attock range). I fancy the Lammergeyer must go a long time without food. On one occasion ten years ago, when in the Himalaya in the snows, I saw two or three feeding on a deer I had shot the previous day, and which had fallen over a precipice. Since then I have never seen this bird in the act of feeding, nor have I ever found food or remains of food in the crop or stomach of those I have killed, except on one occasion in 1867, when I found the hoof of a markhoor goat in the stomach of one I killed at Kalabagh. I think Dr. Adams mentions once finding the hoof of an ibex in one. When they visit the fort and its environs here they sail round as if intently searching the ground for something, and on certain spots they suddenly stop and alight; and I have watched them with my glass swallowing one or two large stones, and then away they sail again. Upon the higher ground I rarely see them alight, except towards night-fall. Goatherds take their flocks all over the hills, and I cannot hear from them that any injury is done to them by the Lammergeyer.

The oorial are not numerous enough to afford them subsistence for any time, and I cannot hear that anyone ever found them, young or old, that the Lammergeyer could be supposed to have destroyed.

Of other food there is none. Wolves, of which there are a few, are out of the question, and there are some foxes; but I should doubt (though it may be true that they may knock a chamois or an oorial over a precipice and eat it after), his vulturine foot, supposing him to be quick enough to seize, having the power to hold and kill a fox. Carrion there is none ever lying about the hills, and, though it is true I have seen them alight on the parade ground at Peshawur and pick up a stone or two, I have never, nor can I hear that anyone has seen them feeding at a carcass like other Vultures.

The Raven is very abundant here, as it is at Peshawur down to Umballa. I think it is identical with the European species; but how it would surprise the English ornithologist to see, as one does every evening in Peshawur, some two or three hundred ravens congregated! One of the new barrack buildings at the station is a favourite resort for them as a roosting place. A ledge, extending along the whole front facing the plain, may be seen every evening at sundown in the cold weather perfectly black with Ravens, sometimes without a foot length

vacant. This, however, is the only place I know of where they congregate in such numbers to roost, though all the day long they may seen about the station, singly, in pairs, or fives and sixes."

Tschudi, "Sketches of the Higher Alps," writes:—

"In earlier times this giant among European birds of prey inhabited all the districts of our higher Alps; but it has now greatly diminished in numbers, building permanent nests only in the mountains of Tessin, the Grisons, the Vallais, Uri, and Berne. On the other mountains its appearance is rare, and in most cases solitary. The last seen in Unterwalden was shot on the Abzeller mountain, on September 24th., 1851, by Michael Sigrist. An old Vulture was for many years observed to perch regularly, at certain seasons, on a huge block of stone in Grindelwald Glacier. The position was quite inaccessible, and beyond the reach of rifle-shot.

The internal structure of the Lammergeyer is very peculiar: the muscles of the breast are of extraordinary size and strength; the long bones hollow as with other birds, become filled by the action of the lungs with air, warmer, and therefore specifically lighter than the surrounding atmosphere, and the bird is thus enabled to soar high into the air without any great exertion. The vigour of its digestive organs is most curious. The gastric juice in a short time decomposes the largest bones and the horny hoofs of cows or calves, continuing its operations even after the death of the animal.

The contents of the stomachs of Lammergeyers which have been opened after death, have created no little astonishment, and surpass all that has ever been related of the voracity and digestive powers of smaller European birds of prey. One contained five bullock's ribs, two inches thick, and from six to nine inches long, a lump of hair, and the leg of a young goat, from the knee to the foot.

Its habits when at liberty have not been sufficiently observed as yet. Small game, such as foxes, lambs, or marmots, it will pounce down upon direct and carry them off. Larger animals it endeavours to drive over precipices, and occasionally it will try this with huntsmen who are in dangerous positions, and who have declared that the noise, together with the strength and rapid motion of the enormous wings, have exerted a certain magical and almost irresistible influence over them. The Lammergeyer is not always successful in securing its prey. Near the so-called "dragon hole," not far from Alpnach, a Vulture seized upon a live fox, and carried it off into the air. The fox, however, stretching out his head, succeeded in seizing his captor by the throat, and biting him through. The Vulture fell dead to the earth, and reynard went home well satisfied with his exploit



BEARDED VULTURE.

The fact of these birds seizing upon children has often been doubted, but there are many well-authenticated stories of such catastrophes. In Appenzall one carried off a child before the eyes of its parents and neighbours. On the Silber Alpan, Schweitz, a Vulture attacked a shepherd boy, began tearing him in pieces, and finally precipitated him into an abyss before assistance arrived. In the Bernere Oberland a child of three years old, called Anna Zurbuchen, was carried off, but rescued on the rocks without having been much injured. She afterwards went by the name of the Geier-Anni, and was living at an advanced age a few years ago.

These birds lift up great weights; in the Grisons one took off a lamb weighing fifteen pounds. Another carried away a butcher's dog; and another instance is recorded of a goat being borne away. A Lammergeyer seldom attacks grown people, never unless its nest is disturbed or the man is in a dangerous position. Two will often attack a man whom they see hanging helpless upon a rock; and on the other hand one will venture single-handed to assail two huntsmen who are asleep.

The nest of the Lammergeyer is not easy to take, and the task is dangerous, as they always build in steep rocks. The renowned chamois hunter Joseph Scherrer, of Ammon, climbed barefoot once, gun in hand, to a nest which he suspected to contain some young. Before he reached it the male bird flew out; Scherrer shot him through, and re-loading his gun proceeded. But when he got near the nest the female flew out upon him, making a terrible noise, and fixing her talons in his hips, and beating him with her wings, endeavoured to drive him over the precipice. His wonderful presence of mind saved him; with the disengaged hand he pointed the gun to the bird's breast, and pressing the trigger with his naked foot discharged it; the Vulture fell dead.

The Lammergeyer builds in places equally inaccessible to naturalists and bullets. Its nest is ingenious; the sub-stratum is formed of a mass of straw, fern, and stalks, lying upon a number of sticks and branches, laid crossways one upon another; the nest, which rests upon the under layer, is composed of branches woven into the shape of a wreath, and lined with down and moss, and the contents of this part alone would fill the largest hay cloth. Very early in the year the female lays three or four large white eggs, spotted with brown, (rusty?—C.R.B.) of which only two generally are hatched. The young birds are covered with a whitish down, and their huge ill-proportioned crops and maws give them an ugly and shapeless appearance."

We have been favoured by Mr. J. H. Gurney with the following notes of this bird:—"Specimens from Algeria and the Caucasus are identical with the European. Those from Abyssinia differ from the

above in having the lower part of the tarsus bare of feathers: this race is called *G. meridionalis*, and is also found in Arabia and the Cape of Good Hope. Specimens from the Himalaya mountains do not differ from those of Europe, Algeria, and the Caucasus, when adult, but the young birds in the Himalaya frequently have the peculiarity of a row of small feathers running down the outer side of the middle toe, half way down the first joint. This disappears when the bird becomes adult.

I do not know whether this peculiarity also occurs in specimens from the Altaic range, and from China. In the Himalayas and Abyssinia it appears to be much more familiar in its habits than in Europe, approaching some of the Vultures in this respect, probably from being less persecuted."

The adult male and female have the body above of a greyish brown, with a white or yellow line upon the middle of a great number of the feathers; lower part of the body white, tinged with a more or less lively red; top of the head white, bounded at the back by a bluish line, which surrounds the eyes, and goes on gradually increasing till it is lost among the hair which covers the cere and the nostrils; neck of a very light red. Tail feathers ash brown, with the shafts white; tail very much graduated. Beak black; iris white, inclined to yellow; free edge of the eyelids red; toes livid. The female has the hairs of the chin and the tibial feathers shorter than the male and stronger.

Young bird, first year dark brown, approaching to black on the neck, and to reddish grey on the chest and abdomen. After the first moult the colour of the feathers becomes lighter, the under part of the body redder, and there are spots of the same colour on the mantle. The red becomes brighter after and paler before each moult, and sometimes more or less white when it assumes its adult plumage. It only arrives at its perfect plumage at six years old, at least in captivity. It is born covered with brown down from head to foot.

The figure of the bird is from a drawing in the British Museum. The egg is from my own collection, and was taken by Dr. Krüper in Greece, in 1865.



NORWEGIAN JER-FALCON.

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus—FALCO. (*Linnæus.*)

Generic Characters.—Head and neck covered with feathers; beak hooked and generally curved from its base; cere coloured, more or less hairy at its base; nostrils lateral, rounded, or ovoid. Tarsi covered with feathers, or with glossy scales. Toes four; external toe often united at its base by a membrane to the middle toe; claws pointed, very much hooked, mobile and retractile. Vertebrae twelve.

Sub-genus—FALCO. (*Bechstein.*)

Sub-generic Characters.—Beak short, and bent from its base; upper mandible with one, rarely two teeth; legs robust; toes strong, long, and armed with curved and sharp claws; tarsi short; wings long, first and third quill feathers of equal length, second quill feather the longest.

NORWEGIAN JER-FALCON.

Falco Gyr-falco.

<i>Falco Gyr-falco,</i>	SCHLEGEL; Revue, 1844.
“ <i>Lanarius,</i>	LINNÆUS; Faun. Suec., p. 22, No. 62.
<i>Le Faucon d' Islande,</i>	BRISSEAU; i., pl. 31, p. 373.
<i>Le Gerfaut de Norvège,</i>	BUFFON; pl. Enl. 462, (<i>young.</i>) Hist. Nat. des Oiseaux, i., p. 241, pl. 13, (<i>adult.</i>)
<i>Le Gerfaut,</i>	SCHLEGEL ET VERSTER; Traité de Fauconnerie, (<i>fig. female jun., male adult.</i>)
<i>Falco Gyr-falco Norvegicus,</i>	WOLLEY. BREE; in first edition.

Specific Characters.—Upper half of the tarsi clothed, lower half and toes of a greenish yellow; moustache very small; groundwork of plumage bluish brown above, white below; spotted on the belly and striped upon the sides

and beneath the tail, in the adult. While young it resembles the young of the Greenland and Iceland Falcons, but is smaller.—DEGLAND.

Measurement. Male—From tip of beak to end of tail twenty inches, (Paris.) Expanse of wings twelve inches and a half to thirteen inches and a quarter. Tail seven inches two lines to seven inches eight lines. Middle toe, without claw, one inch ten lines. Tarsus two inches three lines. Female—About one tenth larger.—SCHLEGEL.

THE bird with which I commence my description of the important and interesting family of *Falconidæ*, has been the subject of much controversy among ornithologists. Some authors maintain there is only one genuine species of Jer-Falcon. Others, and I may say the greater number of the naturalists of the present day, admit there are two—while the opinion has been rapidly gaining ground of late years, that there are no less than three.

The subject is one of considerable interest in Natural History, and although it forms no part of the plan of this work to enter into controversial discussions, it is no less the duty of him who conducts it, to lay before his readers a brief statement of the case as it now stands, and the reasons which have induced him to include the bird at the head of this description, among those which are observed in Europe; and as therefore distinct from the other two species which have occurred in England. Nay, I believe, strictly speaking, the Jer-Falcon now under discussion has been killed in England; but as the authors of our British works have only described and figured one bird under the general name of *F. Islandicus*, I have thought it better to give a figure of the *F. Gyr-falco* of Schlegel, and to state the reasons of that eminent naturalist for claiming specific distinction for this bird.

When Gould published his work on the "Birds of Europe," in 1837, he alluded to the statements made by Falconers who bring over trained Falcons for sale to this country, that there was a decided difference between the Norwegian and Iceland birds, and he asks the question—are there two species? Temminck had previously described one species only, *F. Islandicus*, and had given *Falco Islandicus Canadicans* of Latham, Gmelin, and Meyer, as the female; while he confounded *Falco Sacer*, the bird next to be described, with the *Falco Gyr-falco* of authors, which he considered the young of *F. Islandicus*.

A year after Mr. Gould's work appeared, Mr. Hancock sent a memoir to the "Annals and Magazine of Natural History," in which he described two Jer-Falcons as existing among the English specimens, under the name of *F. Islandicus*; and to these birds he gave the

names of *Falco Greenlandicus* and *Falco Islandicus*; the former being the light-coloured species, or, as Mr. H. subsequently described it—"having white feathers with dark markings"—the latter the darker bird—having "dark feathers with light markings;" and these differences, in the last paper referred to, Mr. Hancock says exist at all ages, and are permanent and specific distinctions.

In 1844 Schlegel published his "Revue Critique des Oiseaux d'Europe," and subsequently his splendid "Traité de Fauconnerie," in which he describes, and in the latter illustrates with beautiful drawings by Wolff, three distinct species of Jer-Falcon, under the names of *Falco Candicans*, (*Greenlandicus* of Hancock;) *Falco Islandicus*, (*Islandicus* of Hancock;) and *Falco Gyr-falco*, the subject of the present notice.

In 1854 Mr. Hancock published a second paper in the "Annals," in which he corrects some important mistakes he had made in his first, regarding the plumage of the whiter species when young. Mr. H. having had an opportunity of examining upwards of one hundred and fifty specimens, is now quite convinced that the Iceland and Greenland Falcons are distinct species or races; that the Greenland Falcon is never dark like the Iceland, however young; and that the adult is distinguished more by the difference of shape in the markings, than by the colour.

This, I believe, is the position in which this interesting discussion now stands. I will not offer any further observations about the Greenland and Iceland birds, but proceed to lay before my readers a history of, and Schlegel's description of the third species, the Norwegian Jer-Falcon.

Buffon gives two figures of this bird; one of a young subject under the name of Norwegian Falcon, and the adult simply as Ger-Falcon. Linnæus appears to describe the female of adult age under the name of *Rusticolus*, and the young male as *Lanarius*. His diagnoses are *Falco rusticolus*.—*F. cera palpebris pedibusque luteis, corpore cinereo alboque undulato, collari albo.* *Falco lanarius*.—*F. cera lutea pedibus rostroque cæruleis, corpore subtus, maculis nigris longitudinalibus.*

The name of Jer-Falcon used to be applied indiscriminately to all the three races or species. Schlegel proposes to confine it entirely to the true Jer, the Norway species. The name is supposed by some to be derived from *Gyrau*, because the bird rises in circles as it pursues its prey. About the twelfth century these birds were brought, for the purposes of Falconry, from the North of Europe and the Low Countries, to all other European nations, even to the Levant.

Schlegel suggests that those ancient Falconers may have given the

name they now bear, as in Holland there are several words composed in the same manner, as *Gier*, derived from the verb *gieren*, which in Dutch has many meanings, as "uttering shrill cries," "clawing or seizing objects," "flying or throwing oneself swiftly from side to side." In England the name used is Jer-Falcon, or simply Jer.

The true Ger-Falcon has only been observed at present in the season of propagation on the Norwegian Alps. This is evidently the species which F. Boie met with in 1817, when travelling in Norway, and of which he relates that it leaves the mountains in winter, and accompanies the Ptarmigans, which are its principal food, in their migrations to the sea-shore. The Norwegians assured M. Boie that neither white nor whitish Falcons exist in their country, and we cannot therefore doubt but that the great Falcons of this country belong to this species of Ger-Falcon. M. Boie further adds that the young of the year leave the mountains in winter, and then visit the other parts of Sweden towards the south. The Falconers establish themselves always on the Dovrefeld, but they only take young birds of the year. In Holland, also, the Falconers take from time to time specimens of the young bird; from which we may conclude with Nilsson, that the adults never go far from their habitual dwellings. Very little is known about the habits and propagation of this bird in its wild state.

Mr. Wolley, Junr., writing in 1856, says in his "Catalogue of Eggs," sold by Mr. Stevens:—" *Falco Gyr-falco* of Schlegel is the true Gyr-Falcon at present so little generally known in England, though Schlegel says the young have occurred here, as they do constantly in Holland. In immature plumage the bird is scarcely to be distinguished from the immature Icelanders. Whether to be considered a distinct species or not, this Lapland, and, probably Siberian form, must be carefully separated from the Greenland and Iceland ones, which are so well known through the researches of Mr. Hancock. Schlegel, writing three or four years ago, says that nothing is known of its nidification; these eggs are therefore probably the first that have been seen by naturalists. Mr. Wolley, in 1854 and 1855, had the pleasure of taking four nests "with his own hands." It breeds in the most remote districts, commencing whilst the winter snow is still undiminished. The adult birds seem to confine themselves to the far north of the country, and they are the only species or race of the Great Falcon which occurs in Lapland."

The following graphic account of Mr. Wolley's first capture of the egg of *Gyr-falco* is taken from an admirable catalogue of his eggs (illustrated) by Professor Newton, I mean "*Ootheca Wolleyana*:"—

"We had not long left the track on the river when a Falcon flew from the rock where the nest was supposed to be, and soon afterwards turning back, settled on the trunk of a dead tree, once or twice uttering a cry. I now knew there was a nest, and in a few minutes more I saw it looking very large and with a black space about it, as though it were in the mouth of a little cave in the face of the rock. This was a joyful moment, but not so much so as when the hen bird flew off with somewhat cramped wings and settled on a little stump some thirty yards from the nest. I would not let Ludwig shoot. We were ascending the hill, and might be fifty yards off when she left the nest. I took off my shoes, though there was a deep snow everywhere except just on the face of the rock, and first tried it from above, but it seemed hardly practicable. Then I went below, and with the Lapp to support my feet, and Ludwig to give me additional help with a pole, I managed to climb up. Just at the last bit I had to rest some time. Then I drew myself up, and saw the four eggs to my right hand, looking small in the middle of a large nest. Again I waited, to get steady for the final reach. I had only a bit of stone to stand on, not bigger than a walnut, frozen to the surface of the ledge which sloped outwards. I put two of the eggs into my cap, and two into my pockets, and cautiously withdrew. The nest appeared to have been quite freshly made, and therefore by the bird herself the sticks were thick, certainly more so than those used by Ravens or Buzzards, and, unlike the nests of the latter which I saw the next day, they were barkless and bleached. The only lining was a bundle or two of coarsish dry grass. As I returned I touched the eggs on a point of rock above me, luckily without injuring them. I handed them down in a glove at the end of a pole which the Lapp improvised for me, after the fashion of a church collecting-bag; and when they were placed in a safe corner, my feet were put in the right place, and I descended in safety. There were young inside perhaps one and a half inches long with heads as big as horse-beans."

One of the twenty-seven nests noticed by Mr. Wolley was built in a tree; all the others in cliffs except the same bird which built in a tree did the same thing the next year. Professor Newton has figured six selected specimens which are beautifully drawn and coloured by chromo-lithography.

Writing again in 1858, the same able naturalist further observes:—"In Scandinavia the forms found in Greenland and Iceland never seem to occur. There can be little doubt that young individuals, which are very difficult to distinguish from Icelanders, occasionally visit Britain, as they do the parallel countries on the continent."

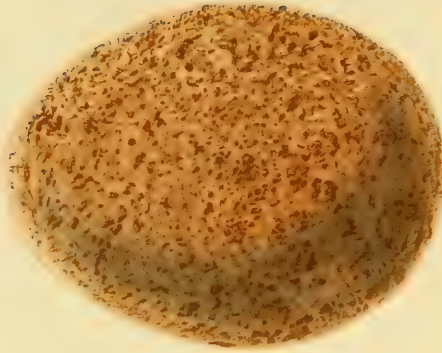
Mr. Wolley remarks that it would be convenient to call this bird *Falco Gyr-falco Norvegicus*, and in the first edition of this work I adopted this name. It has been suggested, however, that as this bird is the only true "Jer Falcon," any addition to it draws an impression that there is another somewhere else. I have therefore omitted the affix in this addition.

In captivity it differs a good deal from the white and Icelandic birds. It is obstinate, revengeful, and sometimes attacks Falcons of any species, or darts upon its comrade instead of its game.

With regard to the specific difference between the *Gyr-falco* and *F. Islandicus* M. Schlegel observes:—"When young, the Gyr-Falcon agrees in colour in every respect with the young of the Iceland bird, and the distribution of colours has the same individual varieties in both. The feet are, when young, of a dirty olive green, approaching to yellow distinctly on the plates covering the toes. The cere or eyelids are generally rather brighter than the feet.

The arrangement of colours of the adult Gyr-Falcon is very agreeable, and resembles that of the full-grown Peregrine, with the exception of the nape, which in the former is ornamented with some white spots; head and region of the ears slate-coloured. The moustache is less marked, and not so dark; the spots of the inferior parts are more decidedly transverse; but the feet are of a greenish colour, and the tints in general offer in their shades more or less sensible modifications. In other respects the Gyr-Falcon is quite different from the Peregrine; the tail is longer, toes shorter, and there are other characters proper to the division to which it belongs, which must prevent the two birds ever being mistaken for each other.

The Gyr-Falcon in its perfect plumage, has the feet of a bright olive green, dirty, rather pale, and approaching to yellow very visibly upon the plates of the toes; the cere and eyelids greenish yellow; beak bluish, colour of horn, passing into black towards the tip, and yellow towards the base. Upper parts and sides of head, posterior or lateral parts of the neck bluish grey, black, or slate-colour: this tint is rather deeper towards the centre of each feather. On each side of the nape is a kind of incomplete collar formed by some rows of whitish feathers, each ornamented with a longitudinal blackish spot. All the feathers of the upper surface of the wings and secondaries are the colour of dark slate, approaching to brown: but this tint is broken by the black quill shafts, as well as by the borders and spots of bluish grey with which these feathers are ornamented. These markings, constantly of a transverse form, are larger and more numerous upon the greater wing coverts and secondaries, where they



: NORWEGIAN JER-FALC N.

. . . B. SAKER FALCON.

take the form of bands more or less complete, and are often pointed with brown in the centre. The clear tint of which we have spoken is paler and more dirty upon the upper tail coverts, and it there becomes uppermost, so that the darker tint appears under the form of crescentic-transverse bands. Upon the sides of the rump the clear tint approaches to whitish, and the transverse bands are of a dark grey approaching to violet blue. The ground colour of the primaries approaches strongly to blackish brown; the brownish grey spots of the external barbs of these feathers is lost towards their extremity, which is of a fine glossy white; the spots, on the contrary, which are on the inner barbs of the quill feathers, are as pale on the inferior surface of the wings, while on the upper surface they approach to reddish brown, which again changes to white on the anterior feathers. The bright bands of the tail, of which there are from fourteen to fifteen, are of a dirtier tint than the spots above the body, and they are covered distinctly towards the centre with numerous confluent spots of a pale brown. These bands being rather large the dark tints appear upon the tail in the form of narrow streaks, sometimes continuous, sometimes opposite, sometimes in an arch or crescent, and are darker towards the extremity of the tail, which is of a more or less dirty white.

The under surface of the tail is generally paler than the upper. The lesser wing coverts are ornamented with clear spots, sometimes of an orbicular or oval form, and those spots are transverse on the greater wing coverts. The ground colour of the superior parts of the bird is of a more or less pure white, ornamented with spots of a dark slate-colour, approaching to brown, which form longitudinal streaks on the chin and throat, and narrow spots in front of the neck and region of the crop, increasing in size towards the extremity of the feathers, where they appear like tears or drops; they are of a deeper tint, and cordate towards the tips of the feathers of the flank, and lozenge-shaped towards the base, approaching the form of the transverse bands more or less perfectly; on the feathers of the legs are transverse spots or bands, closer together. The markings of the under tail coverts are of a greater extent, less numerous, lozenge-shaped, and often extended along the quill shafts in the form of fine deep streaks.

The figure of this bird's egg is from a specimen taken at Kantokaino, near Quickiock, Lapland, and sent to me by Dr. Meves of Stockholm. It was taken in 1869, and is now in my collection.

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus—FALCO. (*Linnæus.*)Sub-genus—FALCO. (*Bechstein.*)

SAKER FALCON.

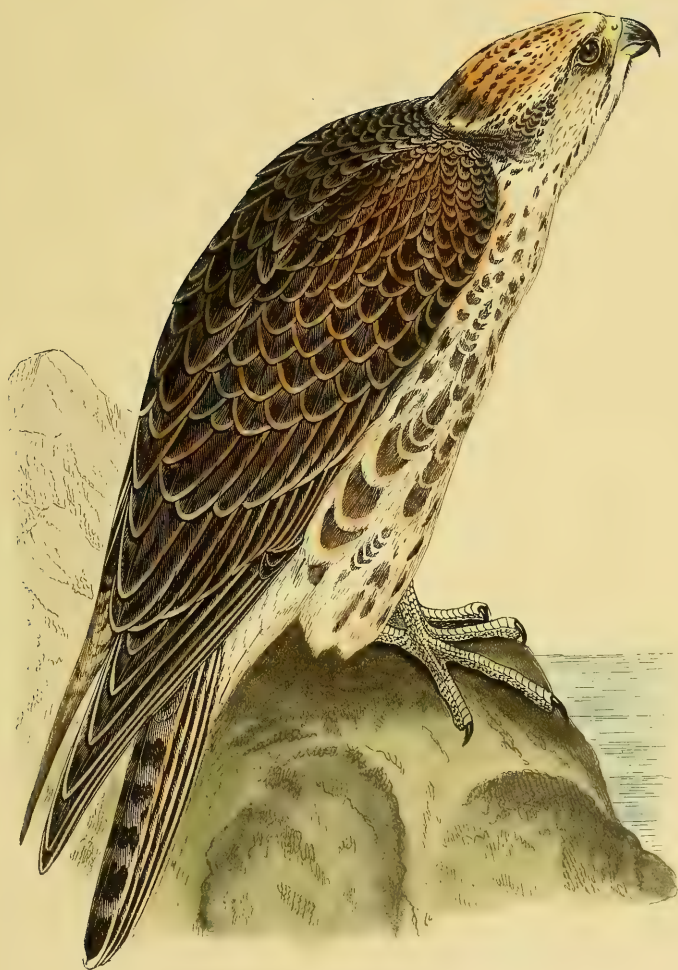
Falco sacer.

<i>Falco sacer,</i>	SCHLEGEL; Revue, p. 2.
<i>Le sacre,</i>	BUFFON; Nat. Hist. des Oiseaux, p. 24, pl. 14.
<i>Falco lanarius,</i>	TEMMINCK; Man. i., p. 20.
“ “	PALLAS; Zoog., Ex. Syn. i., p. 330.
“ “	NAUMANN; T. 23, f. 1, (<i>fem. ad. mas jun.</i>)
“ “	GOULD; Birds of Europe, pl. 20, (<i>ad. et jun.</i>)
“ “	SCHLEGEL u SUSEMIHL; Tab. 7, (<i>ad. et jun.</i>)
<i>Le sacre,</i>	SCHLEGEL ET VERSTER; Traité de Fauconnerie, fig. ad.
<i>Falco lanarius,</i>	OF SOME GERMAN NATURALISTS.

Specific Characters.—Moustache very narrow, hardly existing; tail long; feet bluish; median toe shorter than tarsus; spots white, ovoid and round on the tail.—DEGLAND.

Measurement. Male—Length one foot seven inches six lines. Wings thirteen inches and a half. Tail eight inches. Middle toe one inch eight lines. Female—Length one foot eight or nine inches. Wings fourteen inches and a half. Tail eight inches and three quarters. Middle toe one inch eleven lines to two inches.—TEMMINCK AND SCHLEGEL.

THE Saker Falcon was confounded from the time of Temminck's first edition of the "Manuel d' Ornithologie," up to the publication of Schlegel's "Revue," in 1844, with the *Falco lanarius* of Linnæus; and it is still named as such in collections. Some of the German naturalists add another *i*, making it as above, "*lanarius*," which they intend to be a mark of distinction from the next species. M. Schlegel has, however,



SAKER FALCON.

restored the ancient name of *Le sacre* to the bird described as such by Gesner, Belon, and Buffon, and I think he has done good service to natural science by his researches on the subject; inasmuch as the Lanner Falcon, hitherto confounded with almost every other member of its family, will now take its proper place, and the distinction between it and the Saker, so ably drawn by M. Schlegel, and which in both instances I shall give almost in that naturalist's own words, must for the future be without doubt.

In the extracts from Schlegel's great work on Falconry, which I shall make about this rare bird, that naturalist says, "it is not found, to my knowledge, in any of the English or French Museums." There is, however, now a living specimen of this bird in the Gardens of the Zoological Society, to which my attention was drawn by Mr. Gurney. "A living specimen of this bird from Tarsus, now in the Gardens of the Zoological Society, has a different plumage from any other specimens I have seen. This individual is cross-barred like a female Merlin." In a subsequent note Mr. Gurney says, that he has seen another specimen in the collection of the East India Company, in which the plumage is the same as in the above bird, namely, having distinct, brown, transverse markings all across the back, shoulders, and wing coverts. Mr. Gurney considers these are the markings of adult age, as the specimens in the Zoological Gardens, (labelled *F. lanarius*, Linnæus,) had few, if any, of them when first sent there. There is a similar specimen in the Norwich Museum from Athens. Mr. Gurney still thinks (1873) that these birds are the same as *F. Hendersoni*, and only a phase of *F. sacer*, a plumage which he says the adult birds of that Falcon sometimes (but apparently not always) assume. If these birds turn out to be distinct, Hodgson's name *F. milvipes* has priority over *Hendersoni*.

M. Schlegel observes:—"In the works of antiquity, though the description given exactly corresponds with this species, we cannot say that any distinctive name was given to it. In the middle ages authors equally puzzled themselves and others about this bird, while the English naturalists, (none with the exception of Gould having seen the Saker in nature,) have only compiled what they have read of it in the works of their predecessors. Forster's is the young of the White Jer-Falcon. Linnæus omits it altogether. Buffon's figure appears to be the true Saker, painted from a specimen in the Royal Ménagerie; his description he takes from Belon. Pennant, Latham, Gmelin, and other naturalists to the end of the last century, have made their Saker from a melange of other birds described by their predecessors. Huber confounds his pretty little figure with the Lanner, by which name he designates it;

so has Bechstein, having like Temminck and Naumann, received his specimens from the Vienna Museum, the only place where the true Saker then existed; they have described it as Lanner. The Saker is very rare now in collections, and it is not found, to my knowledge, in the English or French Museums." (Schlegel writes in 1844-53.)

The Saker has been very well figured under the name of Lanner, by Gould, Naumann, and Susemihl.

The word Saker or Sacer, used in Europe since the Emperor Frederick, is the Arabic name for Falcon; it must not be confounded with the Latin *Sacer*, which means "sacred," for this mistake has caused the *F. sacer* to be confounded with the Sacred Falcon of the Egyptians, and has been one of the means of throwing confusion over its history.

Several have been killed in Hungary, and young birds have been brought thence to Austria, taken out of their nests in the month of May, about sixty years ago, and sent to the principal Falconers in Europe. Pallas, under the name of Lanner, speaks of two species, one stronger than the other, from the Ural Mountains; the weaker and smaller one more common from the deserts of Grand Tartary. Pallas, whose remarks in natural history are very exact, says, (and all his observations are evidently referable to the true Saker,) they build their nests on trees or even shrubs, found in the midst of the desert. The young birds, to the number of two or three, often leave the nest before they are full-grown, and follow their mother everywhere, screaming lustily. They are then easily caught by the inhabitants of the desert, and sold to the Kalmuc Tartars as hunting birds. They are used sometimes for taking the Kite, as they are considered too small for this purpose.

Mr. Gurney has favoured me with the following localities in which this bird has been observed:—"Algeria, Egypt, Dobrudsha, Greece, Tarsus, Lebanon, Northern India, Cashmere, Ladak, and China." It is very common on the Volga.

The Saker Falcon is closely allied to, but distinct from, the Jugger of India, as the reader may readily convince himself if he will read Mr. Hume's exhaustive account of the latter: ("My Scrap-Book," p. 70.) To Indian sportsmen the last paragraph of this account may be useful, and I will therefore copy it for their benefit. "Generally it may be said that if any beginner meets in India with a true Falcon of large size, without any markings on the upper surface, it is *F. jugger*. If there are markings, and there are large round or oval spots, the bird is *F. sacer* (a nearly allied and as yet undiscriminated species). If the markings are bars, and the head and nape nearly black, the latter with a few rufous or buffy feathers, it is *peregrinator* or *atriceps*; if

the head is brown, or in adult dress blackish slaty, *peregrinus*; if rufous, *babylonicus*. It is *peregrinus* if the cheek stripe is broad and massive; *babylonicus* if long and narrow." Mr. Hume has added a note telling us he will not vouch for the constancy of those characters, but they will be useful taken with this caution.

I quote the following from Heuglin's "Ornithologie Nord Ost Africas:"—"The Saker Falcon, like its congener, the Indian Jugger, changes its colour but little with increasing age; generally the upper parts in the old birds are not overspread with bluish grey, and show but slight sign of bands. The ground colour of the under parts alternates between a clear white and a bright brownish yellow, and is, with the exception of the whitish throat, striped or dotted with dark brown, blending into a pale rusty fawn. The Saker is the hunting Falcon (*par excellence*) of the Arabian and Syrian Falconers. It is only a winter visitor in Lower Egypt, and is therefore introduced from Syria, Asia Minor, the Crimea, and Persia—good birds fetching enormous prices. When the waterfowl take up their winter quarters on the lagoons and morasses of the delta of the Nile, numbers of Falcons and Eagles assemble at the same time, viz., Lanners, Peregrines, Imperial Eagles, and with them now and then a Saker, which soon chooses for himself a resting-place on a solitary palm, acacia, or sycamore, from which he can overlook his hunting ground. At dawn of day the dinning noise of thousands of Geese, Ducks, and Sanderlings, which invade the rushy islets in the lagoons, or the shallow open waters, is first heard. Then the Saker leaves its post, regardless of the mist which covers the waters. It moves in a straight line, low down towards a lively flock of Ducks. The moment it is seen the Ducks either dive or rise up, and try to save themselves by flight. Now the Falcon descends a little, rushing like an arrow, and either beats down its prey or seizes it at once in its talons, and carries it, heedless of the screaming of rival Kites and Falcons, to the first high and dry spot, where it feasts at pleasure upon its victim. Sometimes it circles also in the air, and suddenly descends, as though in play, upon the fowl scattered about the morasses, and picking out one from the rest, it gives chase. The quarry seldom escapes, although the Saker is much less hasty and violent in its way of setting to work and hunting than its allies. During the warmer part of the day it is very active in its movements, and upon approaching twilight it retires with quiet, direct, and somewhat lazy flight towards its resting-place for the night. The Arabian Falconers catch the Saker in iron wire snares, the sides of which are covered with strips of cloth to protect the talons of the birds. These traps are placed on the spot where the

birds are accustomed to roost at night. They are furnished with a spring, which turns at the movement of a feather, so that the prisoner hangs in the air, and cannot hurt itself until the Falconer, who is on the watch, takes it out."

The following is M. Schlegel's description of the Saker Falcon, which from the confusion of its diagnosis, we shall be excused for quoting at length from his work upon Falconry.

"The Saker of the Falconers is a bird of a figure rather stronger than the Lanner, and consequently it is intermediate in this respect between this species and the Gyr-Falcon. It is distinguished from these two Falcons when young by a different modification of the tints, and by the two intermediate quills of the tail not being generally ornamented with bright bands. In adult age it is different from all other Falcons. Its plumage, like that of the young birds, is of more agreeable tints, and has not transverse bands either on the upper part of the body or on the under side. The tarsi are feathered above half their length. The tail goes beyond the wings when folded, from an inch and a quarter to an inch and a half.

In the first year, though the colours are distributed in general similarly to those of the young Gyr-Falcon, it differs from it in the following details:—The ground colour of the upper parts is not so deep in the Saker, particularly on the tail, and it approaches more strongly to brown. There are only some isolated bright spots to be seen on the scapularies, which spots, as well as the borders of the feathers, are of a pale reddish brown, clearer upon the edges of the quill feathers. There is more white upon the nape, and upon the upper part of the head, where may also be seen some traces of a very pale reddish brown. The tail is widely bordered with white at the extremity; generally only clear markings are to be seen on the internal barbs of the lateral tail quills, and these markings, to the number of ten or eleven, are of an oval form, approaching more or less to orbicular. The spots of the under parts, generally of a very deep brown, are usually a little narrower in the young of the Gyr-Falcon, and they are not often seen upon the under part of the tail, except in the shape of thin dark streaks occupying the shafts of the feathers. The auditory region is always marked with white in the middle, and this prevails on the front of the forehead. The quill feathers have clear spots upon their inner barbs. The feet, the cere, and eyelids, are of a livid greenish blue, approaching to yellow in the plates of the toes.

The colours of the Saker undergo in moulting the following changes: The ground colour of the upper parts is paler, distinctly so on the tail; the edges of the feathers are, on the contrary, of a more lively

red on the back and wings, but paler on the quills of the tail and the secondaries. The feathers on the crown of the head have a rather wide edge of reddish brown, approaching to white. The moustache but slightly visible. Chin, throat, and lesser wing coverts are of a dirty uniform white, and this prevails in the under parts of the body, the markings there being paler and less extended; these markings in the form of drops, and rather small upon the chest, the belly, and the feathers of the legs, are however much larger upon the sides. Those observable upon the lesser wing coverts are longitudinal, but the white spots of the great coverts are transverse, and arranged in bands. The claws as in the young bird, are of a uniform black, and the beak is of a bluish horn colour, passing into black towards the tip, and into yellowish towards the base of the beak. The feet, on the contrary, the cere, and the eyelids approach more strongly to yellowish than in the young bird."

The figures of the egg of this bird are from my own collection. The lighter coloured one is from the Volga, and was sent to me with three others from the same nest and the bird. The other is from South Russia, and was taken by Herr Glitzch. The above are selected from about twenty specimens.

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus—FALCO. (*Linnæus.*)Sub-genus—FALCO. (*Bechstein.*)

LANNER FALCON.

Falco Lanarius.

<i>Falco Lanarius,</i>	SCHLEGEL; Revue, 1844, p. 2.
“ “	KLEIN; Oïdo Avium, p. 48, No. 5.
“ <i>tanypterus,</i>	BLASIUS.
“ <i>lanarius,</i>	BONAPARTE.
“ “ <i>nubicus,</i>	SCHLEGEL.
“ <i>Feldeggi,</i>	SCHLEGEL; Zoologie. SCHLEGEL AND SUSEMIHL.
<i>Le Lanier,</i>	BELON; p. 123. BUFFON; Nat. Hist. des Ois., i., p. 243.
“ “	SCHLEGEL ET VERSTER; Traité de Fauconnerie, fem. adult.

Specific Characters.—Moustache narrow; tail long; toes short, the median shorter than the tarsus. Plumage like that of the Peregrine Falcon, with the nape of the neck a reddish brown.—DEGLAND.

Measurement. Male—Length fourteen inches. Length of wing twelve inches and a quarter. Length of tail six inches ten lines. Middle toe one inch eight lines. Female—Length fifteen inches. Length of wing twelve inches and three-quarters. Length of tail seven inches ten lines. Middle toe one inch nine lines.

THERE is no Falcon about which so much confusion has existed as the celebrated Lanner of Falconry. The name has been given to the Peregrine, the Ger-Falcon, the Sacer, and other birds, even by systematic writers. We are indebted to M. Schlegel for applying the right



LANNER FALCON.

name to the right bird, and for drawing that distinction between this and the preceding species, which must in future prevent any mistake.

There are few naturalists who have correctly distinguished this bird. Schlegel considers that Naumann and Buffon have represented the true Lanner, killed at the beginning of the first moult, but they have taken it for the young of the Peregrine. The Lanner of Linnæus and Nillson he thinks is identical with the Ger-Falcon of Norway. The bird described by Pennant as this species, appears to be the young of the Peregrine. Schlegel himself, in his "Zoology," described as new to science, a Falcon under the name of *Falco Feldeggii*, which upon more attentive examination he became convinced was no other than the bird known to Falconers, and first described by Belon, so long back as 1555, in his "Hist. de la Nat. des Oiseaux," as the true Lanner, the subject of the present notice.

There is a specimen in the Museum of Mayence, of a young bird, killed at Hanau, which has considerable resemblance to the *Falco Biarmicus* of Temminck, but is distinguished by the colour as well as by the first quill feather being longer in the Lanner. The only Falcon for which it can be mistaken is the Peregrine, and here the likeness is considerable, but it may be readily distinguished by the greater proportionate length of its tail, by the toes being shorter, by the moustache (the dark longitudinal mark on the side of the head and neck) being less, by the feathers of the inferior parts being larger and softer, by the reddish colour of the nape, and by the absence of the transverse dark-coloured bands on the belly and thighs.

The following I collate from Heuglin's "Vögel Nord Ost. Africas:"—

Schlegel considers the Shahin only a climatical variety of the Lanner of Eastern Europe, and it is certain that the resemblance is very close, only that in the southern form the feathers are of a rusty red, while the crown of the head and the neck appear of a more lively red or are pale rusty yellow. (I presume Heuglin refers here to *Falco babylonicus* (the Redcap Falcon), which is called the Shahin by the Punjaub Falconers, and an excellent account of which will be found in Hume's recently published "Rough Notes of Indian Ornithology," part 1, Raptores.) Heuglin describes the Lanner under three different forms or races.

(a) The Nubian Lanner (*Falco lanarius nubicus*=*F. tanypterus*, Licht.)—In this bird the sides are sometimes sprinkled with grey, and in many individuals there is across the forehead and between the eyes a smoky-black band, which, however, is not so sharply defined as in *F. barbarus*. Crown of head and neck generally rusty yellow, with often a darker band on the neck; the upper parts of the body vary in

colour between a delicate grey and a pale slate colour, sometimes passing into rusty yellow. The under parts clear brownish yellow or grey fawn, much more thickly dotted with brown-black spots, like drops. In the first young plumage they strikingly resemble the young of the Peregrine. Quite old male birds from Nubia, Senar, and Kordofan are more like the South African form in the vinous red of the breast and under parts, the spots seeming to diminish gradually as age advances. The Nubian Lanner is found even in Egypt, but its real home seems to be the middle and south of Nubia, Senar, Kordofan, Takah, Abyssinia, and the Bogos Land. It was not found by Heuglin in the region of the Upper White Nile. In the above named countries it is more an autumn and winter visitor. It is uncertain whether it breeds in Egypt. Speke obtained it for his collection on the Uniamuezi. This Lanner lives mostly in pairs, and maintains a tolerably wide hunting ground, bordering on water. They rest on isolated palms and other high trees; here and there also on rocks and ruins, often in proximity to human settlements. They will readily pounce upon small animals, even hares and antelopes, but generally limit themselves to poultry, doves, wildfowl, and especially water birds. It pursues its prey exactly like the Peregrine; quick as an arrow, and swooping down, either catching it in its claws when flying or striking it on the ground as it stands. Should it miss its aim, it desists from the pursuit. Like the next variety, it is used in hawking. Mr. Gurney says that this is the true *F. lanarius*, and not distinct, though Schlegel treated it as distinct in his large work on Falconry.

(b) The Greek Lanner, (*Falco lanarius græcus*, Schleg.)—This more northern form may generally (says Heuglin) be distinguished from the preceding by its less strongly marked scales on the feet. But this is not a trustworthy distinction, as the real circumferential difference of the scales is trifling. In old birds the top of the head is generally a clear rusty brown; the breast and under parts a very clear isabel, or sprinkled with vinous; these parts, with the legs and under tail coverts, are more thickly studded with brown-black, sharply defined spots, stripes, or dots. The spots here met with on the shafts are mostly very small and sharp, often drawn out lancet-shaped, and underneath or above a small dot; the under tail coverts have cross markings or bars, arrow-shaped or of zigzag form, but in young specimens examined by Heuglin these marks were entirely wanting. The Grecian Lanner is rather common in Egypt and Nubia—more frequent, however, in winter than summer. Its habits are very similar to those of its Nubian congener. In the autumn, when numerous flights of Ducks and Sanderlings in search of snails appear, the Falcon is observed chiefly on the banks of

lagoons and canals, and in undulating meadows. It lives alone or in pairs, and nests on massive rocks and inaccessible ruins. It lays three or four eggs in March or April. They are rather evenly covered with small, often indistinct, rusty brown spots and points on a loam-coloured ground. More rarely they are almost entirely of a dirty or muddy brownish colour, with darker spots scarcely appearing through it. Length, one inch eleven lines to two inches; breadth, one inch five and a half lines to one inch seven and a half lines. The young were found nearly ready to fly in the beginning of May.

(c) The Cape Lanner (*Falco lanarius capensis*, Schlegel.)—Does not occur in Europe. This third variety of Lanner has the scales of the feet like the last-described bird, but differs in having fewer spots on the body underneath, and the unicolourous lively vinous red of the breast. Heuglin found this bird sparingly in Southern Nubia, and in Senar once in January; also in the Quola Lands of Abyssinia. He appears to have parted with his fine collection of Lanners, which he possessed in all plumages—which were, as he expresses it, “scattered to the winds.” He refers, however, to the beautiful collection in the Leyden Museum collected by Schlegel, who is our best authority on these Falcons. Mr. Gurney writes, “This is *F. cervicalis*, Licht.=*F. biarmicus*, Temm. It has *no* spots underneath when fully adult. I don’t think Heuglin ever found the *true* Cape bird in the countries he visited. No one else has seen it out of South Africa.”

It is necessary that no confusion should exist among European ornithologists about the above three forms of Lanner.

In Gray’s “Hand List of Birds,” just published, part 1, the genus *Falco* is divided into four groups. The Jer-Falcons constitute the first division (*a*), under the head of *Hierofalco*, Cuv. 2, The true Falcons of authors, including the Peregrine and its allies, under (*b*) *Falco*, *auct.* The third group (*c*), under the subgeneric name of *Gennaia*, are included the three Lanners just described, with *F. barbarus* and *F. babylonicus*; whilst the fourth group (*d*) wants a subgeneric name, which want Mr. Gray has not ventured to supply.

Very little, if anything, is known about the habits and nidification of the Lanner. It has been observed in Dalmatia, but only accidentally in other parts of Europe. Lewin describes a true Lanner, said to have been shot in Lincolnshire. The Dutch Falconers, who take annually many Falcons, agree in the assurance that they have never seen this bird in a wild state.

In Falconry it is stated to be the best bird to fly at the partridge, and that it will live for many years (eighteen or twenty) in confinement. D’Arcussia, who has written much about Falconry, gives the bird the

character of being cowardly by nature. He says the greater number of these birds come from Sicily, where they build their nests among rocks or the branches of high trees.

Before giving Schlegel's minute description of this bird, we will take the opportunity of saying a few words about the preparation of Falcons for Falconry, with which all the species in this number are so much connected, and which I shall abridge from the "*Histoire Naturelle des Oiseaux*," by Maout.

The object of the Falconer in training his bird is to induce it to give up its own will, and to lose all confidence in its own resources. To do this the bird is first subdued by fear, and then attached by hope. First it is kept in the dark for perhaps sixty or seventy hours, during which time the Falconer has it always on his wrist, which is armed with shackles called "castings," or small leather straps, having belts at their extremities, with which they fasten together the bird's legs. While in this position it is not allowed to sleep, and if rebellious its head is dipped in cold water. It is also kept without food, until worn out by hunger and want of sleep it permits itself to be clothed in what is called a "chaperon," or hood. When it allows itself to be fed quietly, and then hooded again, it is considered tamed and accustomed to its master. The Falconer now uses artificial means to produce intense hunger, so that when appeased the bird may be more attached to the person who feeds it. This is the first lesson.

The Falconer next takes his bird out into a garden, and if when unhooded, it will of its own accord jump on the wrist to feed, it is thought fit to be taught to understand "the lure," which is a piece of leather with the wings and claws of a bird attached to it, and a piece of meat. This, with the voice of the Falconer is the means adopted to bring back the bird when on the wing. After it has been practised in a garden it is taken into the open country, where, with a string attached to its legs, it is permitted to take short flights of about (at first) sixty feet from the earth, increased gradually, and brought back each time with the lure, and rewarded by the piece of meat. The bird is then trained upon tame birds until its education is complete, and it is fit for the field.

Of the birds against which Falcons are flown, the Kite, the Heron, and the Crow are considered the best; such a chase being deemed fit for a prince, while that of the Pheasant, Partridge, or Wild-Duck, is considered fit for gentlemen! Some of the larger Falcons are occasionally used in pursuing the hare, and the Persians even use these birds in hunting the gazelle. They are trained for this purpose by feeding the Falcon on the nose of a stuffed gazelle. When they are thus





1&2. LANNER FALCON.
. BARBARY FALCON.



educated they take them out, and letting two fly at once, one immediately rushes down upon the nose of the poor gazelle and fixes therein its claws; of course the animal is alarmed, and stopping, uses every effort to shake off the bird; but the beating of its wings almost blinds the poor creature, and bewilders it still more. When the first bird is shaken off the other takes its place, and thus the dogs have plenty of time to come up. This same plan is said to be used in taking the wild boar and wild ass.

The plumage of the young Lanner resembles that of the young Saker, with the following exceptions:—The markings of the feathers on the top of the head are not so broad; the whitish colours of the edges of these feathers predominate. The reddish tint of the nape is more “prononcé.” The light edges of the upper parts of the bird are less distinct, and not so brown as in the Saker: on the contrary, these parts are covered with small spots of a very pale red brown irregularly scattered here and there—subject to variety in different birds. The ground colour of the tail is paler than in the Saker, but it is always broken as much upon the external as the internal barbs of the tail quills, by transverse bands, to the number of eleven or twelve, the colour of which incomplete bands is like that of the markings upon the wings. The spots upon the superior parts of the bird are smaller than in the Saker. The lesser wing coverts have dark longitudinal markings, the least covered with whitish spots, generally of an orbicular form; on the greater coverts these spots are transverse and arranged in bands.

In adult plumage the tints of the Lanner have some analogy to those of the Peregrine and Jer-Falcon, but are at once distinguished by the beautiful reddish tinge of the nape and under part of the head. At this age the front of the forehead is whitish. The reddish brown feathers on the nape and upper part of the head have in the centre a longitudinal marking of blackish brown, larger on the middle feathers of the nape. The moustache is rather large but neatly defined. The feathers in the auditory region of a whitish tint strongly approaching to reddish yellow, have longitudinal dark markings, which nearly conceal the ground colour. Eyelids surrounded with black feathers, and a badly-marked streak of the same tint prolongs itself from the eyes beyond the region of the ears, where it disappears on the side of the nape. The colour of the ground of the other inferior parts of the bird is a blackish brown, like dark slate, with transverse markings of a bright bluish grey colour, which take the form of bands on the scapularies, greater coverts, secondaries, and rump, but disappear on the lesser wing coverts. The colour of these bands is bright upon the back and rump, but of a marbled brown on the other parts, growing

of a redder brown towards the anterior extremity of the wing. The primaries, with the exception of the light spots on the inner barbs, are blackish brown. The ground colour of the tail is paler than that of the wings, and broken by a dozen transverse bands of a dirty white colour, shaded with grey brown; the tip of the tail is whitish. The lesser wing coverts are marked by longitudinal dark spots, and inferiorly with orbicular whitish spots: upon the greater coverts these markings assume the form of transverse bands. The prevailing colour of the inferior parts is white, more or less strongly shaded with pale reddish yellow. The chin, throat, and sometimes the crop, are of a uniform whitish hue, but the other inferior parts are ornamented with cordate markings on the chest and belly, assuming on the flanks more the form of bands, lighter in colour on the thighs. On the under tail coverts the dark spots are generally longitudinal and rather narrow.

I have been very careful in giving as fully as possible Schlegel's description of this and the two preceding birds, in order that those who have not access to his great work on Falconry, may have an opportunity of understanding the grounds upon which they are constituted distinct species by that able and indefatigable naturalist.

Good specimens of all are to be seen in the splendid collection of the British Museum.

The upper egg figured of this bird is from a specimen taken in Egypt, and kindly lent to me by Lord Lilford, and as the egg is very rare I have figured another undoubted specimen in the collection of Mr. Savile Reid, which came from Olcese of Tangier, where Major Irby saw both eggs and old bird.



BARBARY FALCON.



RAPACES—DIURNÆ.

FALCONIDÆ.

Genus FALCO.

BARBARY FALCON.

Falco barbarus.

<i>Falco barbarus,</i>	LINNÆUS, 1766; Ibis, 1859.
“ <i>punicus,</i>	LE VAILLANT.
“ <i>tanypterus,</i> (β)	BLASIUS.
“ <i>Barbary Faulcon,</i> ” or <i>Barbary</i>	
<i>Falcon,</i>	OF AUTHORS.
“ <i>Bournee,</i> ”	OF THE ARABS.

Specific Characters.—Nape of the neck rufous; under plumage reddish; feet and claws strongly developed. Length thirteen inches five lines; wing eleven inches; tail five inches; tarsus one inch seven lines; bill from gape one inch.—SALVIN, *Ibis*, vol. i., p. 189.

THIS pretty little miniature Peregrine must not only be considered as distinct from its larger congener, but also freely admitted into the European Fauna, since it has been obtained at Malta; two specimens by Mr. Brooke in Sardinia; and an adult female in Holland, which is preserved in the Leyden Museum.

We are indebted to Mr. Osbert Salvin for a detailed account of this bird, and a beautiful illustration by Wolf. I shall quote freely from this article of Mr. Salvin's, for as an authority among writers upon falconry and hawking birds he stands very high.

“There cannot be much doubt that the small Peregrine of the Atlas, the *Falco punicus* of General Le Vaillant, is in truth the Barbary Falcon of the old writers on Hawking, the foundation of the *F. barbarus* of Linnæus, Gmelin, and Latham, though the latter name

has generally been supposed to be a synonym of *F. peregrinus*, *auct.*" In the "Falcony of the British Isles," Messrs. Salvin and Broderick remark of this bird, "Although smaller by nearly a fourth than the true Peregrine, it has the organs of destruction, such as the beak, feet, and talons fully as large, united to larger and more pointed wings in proportion to its total length—in this respect almost rivalling the Hobby." In a work published two hundred years ago, and quoted by the authors, (the "Gentleman's Recorder," 1677,) "The Barbary or, as some call her, the Tartary Faulcon, is a bird seldom found in any country, and is called a Passenger as well as the Haggard (*F. peregrinus*). They are somewhat lesser than the Tiercel-gentle, (*F. peregrina* ♀,) and plumed red under the wings, strong, armed with long talons and stretchers.

"The Barbary Faulcon is venturously bold, and you may fly her with the Haggard all May and June. They are Hawks very slack in mewing at first; but when they once begin they mew their feathers very fast.

"They are called Barbary Faulcons because they make their passage through that country and Tunis, where they are more frequently taken than in any other place, viz., the Isles of the Levant, Candy, Cyprus, and Rhodes."

The geographical distribution of the Barbary Falcon is limited, its chief home being Northern Africa. Mr. Gurney has had a specimen from Smyrna, and there is a specimen in the Norwich Museum from Western Africa. It also occurs in Egypt, Senar, Nubia, and Abyssinia, and has been obtained in India.

Mr. Salvin had found opportunities of watching this bird in the Eastern Atlas. It builds in cliffs and among rocks. He took a good many eggs, which are similar in colour and variation to those of the Peregrine Falcon. Three eggs from one nest measured—

No. 1.—1 inch 11 lines by 1 inch 7.5 lines.

No. 2.—1 inch 10.5 lines by 1 inch 6 lines.

No. 3.—2 inches 0.5 lines by 1 inch 6.75 lines.

As this bird is sometimes confounded with a small Peregrine named *F. peregrinus minor* by Schlegel and Bonaparte, Heuglin's account of it in Africa will be acceptable to ornithologists. Heuglin considers it a distinct species. It differs from *F. minor* in colour by resembling more *F. lanarius nubicus*, previously noticed; but in its adult form it is distinguished from this bird at a glance by its smaller size, and by the short tail projecting somewhat beyond the wings, the long toes, and some constant variations in colouration. The top of the head is

an iron rusty brown, towards the middle a darker slate black or rusty iron brown, commonly with blackish shaft lines to the feathers. The neck is a lively iron brown, generally with smoky cross streaks, darker around the ears, so that between this part and the dark whisker a small and rather circumscribed whitish space appears; forehead and throat whitish and unspotted, the former sprinkled with a paler rusty colour; the upper parts from slate to a pale ashy grey (here and there with rather rusty brown markings), and somewhat washed-out smoke black cross markings. The upper tail coverts are much clearer than the mantle, and more finely banded than in *F. lanarius nubicus*; the under breast and under wing coverts (clearer or darker) a pale rusty, the sides sometimes sprinkled with grey; the breast in the old bird is unspotted. If there are any spots or cross markings on the sides and thighs, they are always much finer than in *F. lanarius nubicus*; under wing coverts in the old birds unspotted, and fine, often arrow-shaped lines across in the young birds. The under wing coverts touch the points of the tail to within one inch and seven tenths, or one inch and nine tenths, while in *Falco lanarius nubicus* they are at least two inches and a quarter to three inches distant. The young bird is very like that of the Peregrine Falcon. Rüppell and Von Homeyer doubt the specific distinctness of *F. barbarus* and *peregrinus*. It lives in deserts as well as cultivated lands. Heuglin found it in the valleys of the steppes which are covered with trees, on rocky mountains, and on ruins. A solitary date palm, sycamore, acacia, or *Adansonia* is, however, preferred to any other resting place. In Nubia it is at all events sedentary; but whether it leaves Egypt in winter or not is uncertain. Its flight is exactly like that of the Peregrine Falcon, as well as the mode in which it pursues its chase after wildfowl, doves, and water birds. It takes small birds by choice. In Egypt Heuglin collected a great number of eggs from eyries built on the step-shaped projections of the chalky mountains and on the pyramids, which resemble those of *F. lanarius græcus*, but are smaller and covered with rather more strongly marked and larger rusty-brown blotches. They measure twenty lines and a quarter to twenty lines and three quarters long, and sixteen lines and five eighths to seventeen lines broad.

Mr. Gurney writes to me:—"There is a curious variation among the adult birds of *F. barbarus*, some having rufous on the nape, and some being without it. So far as I have observed the females are all without it, and also some of the males, especially those in which the slaty-grey of the back is dark—male birds with pale grey backs being more often adorned with the rufous nape (I think) than the

darker males. I do not think this a matter of age, but of individual varieties in the adult birds."

My figure of this bird is from a male specimen in the Norwich museum, kindly procured for me by Mr. Gurney, and drawn by the talented Curator Mr. Reeve. The egg is from a drawing of one of the specimens mentioned above by Von Heuglin.



CLERON A FALCON.

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus FALCO. (*Linnæus.*)Sub-genus FALCO, (*Bechstein.*) HYPOTRIORCHIS, (*Boir.*)DISSODACTES, (*Sclater.*)

ELEONORA FALCON.

*Falco eleonoræ.**Falco eleonoræ,*

“ “

GÉNÉ; Icon. della Acad. Torino, 1840.

CH. BONAPARTE; Iconografia della
Fauna Italica.

“ “

SCHLEGEL. DEGLAND.

Specific Characters.—Plumage of a black chesnut-colour; beak robust, the upper mandible being straight from the base to the tooth; cere bluish. Wings much longer than the tail; internal toe shorter than the external.—PRINCE CH. BONAPARTE, in Fauna Italica.

Measurement.—Length of adult male in Norwich Museum fourteen inches. Length of wing eleven inches.

WE are indebted to Signor Alberto della Marmora for the introduction of this beautiful Falcon into the European Fauna. In 1836 he saw it on the wing on the Sardinian coast, and suspected from the peculiarity of its cry, that it was an unobserved species. In conjunction with the celebrated naturalist, M. Gén  , a sharp look-out was kept up to obtain a specimen, in which they did not for some time succeed. Marmora at length obtained a female bird, which Gén   declared to be a species new to science, and named it after the Queen Eleonora. In 1840 Gén   published an account of this bird in the “Memoirs of the Academy of Turin,” and discovered another species in the Museum of Turin, killed at Beyrout, and one killed in the vicinity of Genoa, in the collection of the Marquis C. Darazzo—which last bird proved to

be the male of his Eleonora. Since then it has been beautifully figured and described at length by Prince Charles Bonaparte, in that splendid work, the "Iconografia della Fauna Italica."

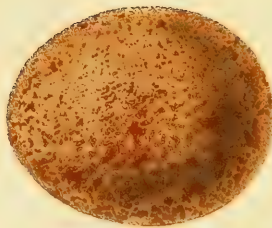
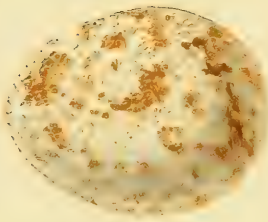
M. Temminck, in his "Manuel d'Ornithologie," described, and after him, Mr. Gould figured and described the *Falco concolor* as a European species. M. Schlegel, however, in his "Revue," in 1844, and other writers since, have considered that M. Temminck confounded specimens of the Eleonora Falcon with those of *F. concolor*; and they founded this opinion chiefly upon the want of confirmation, since Temminck's last edition of the "Manuel" in 1840, of the latter bird having been ever taken in Europe. M. Von der Mühle mentions, however, that it has occurred in Greece, though Schlegel thinks he has mistaken it for the bird I am now noticing. Whether *F. concolor* is a European species or not, future observation must decide, but of this there can be no doubt—that the species are totally distinct; and it is hardly likely that such good ornithologists as Temminck and Gould could have confounded one with the other. The only similarity between the two birds is that they are each unicolorous; but then the colour of one is chesnut; the other dark slate or lead-colour; while there are specific points of difference between them sufficiently clear. I have, however, amid the uncertainty which exists, thought it better to omit *F. concolor*, though I do so with reluctance, from the European list.

The Eleonora Falcon is found in Spain, Sardinia, Greece, and Syria; it occurs also in Northern Africa, and the Norwich Museum possesses an immature example from Madagascar. It seems to prefer plantations and shrubby woods for its residence. According to Prince Bonaparte it nests in July and August, in cavities covered with bushes among the rocky precipices near the sea. It lays three eggs, of a pale reddish colour, finely spotted, like the Hobby, with ferruginous brown.

I quote the following from an interesting paper on the "Birds of Southern Spain," by Mr. Howard Saunders, "Ibis," 1871, p. 58.

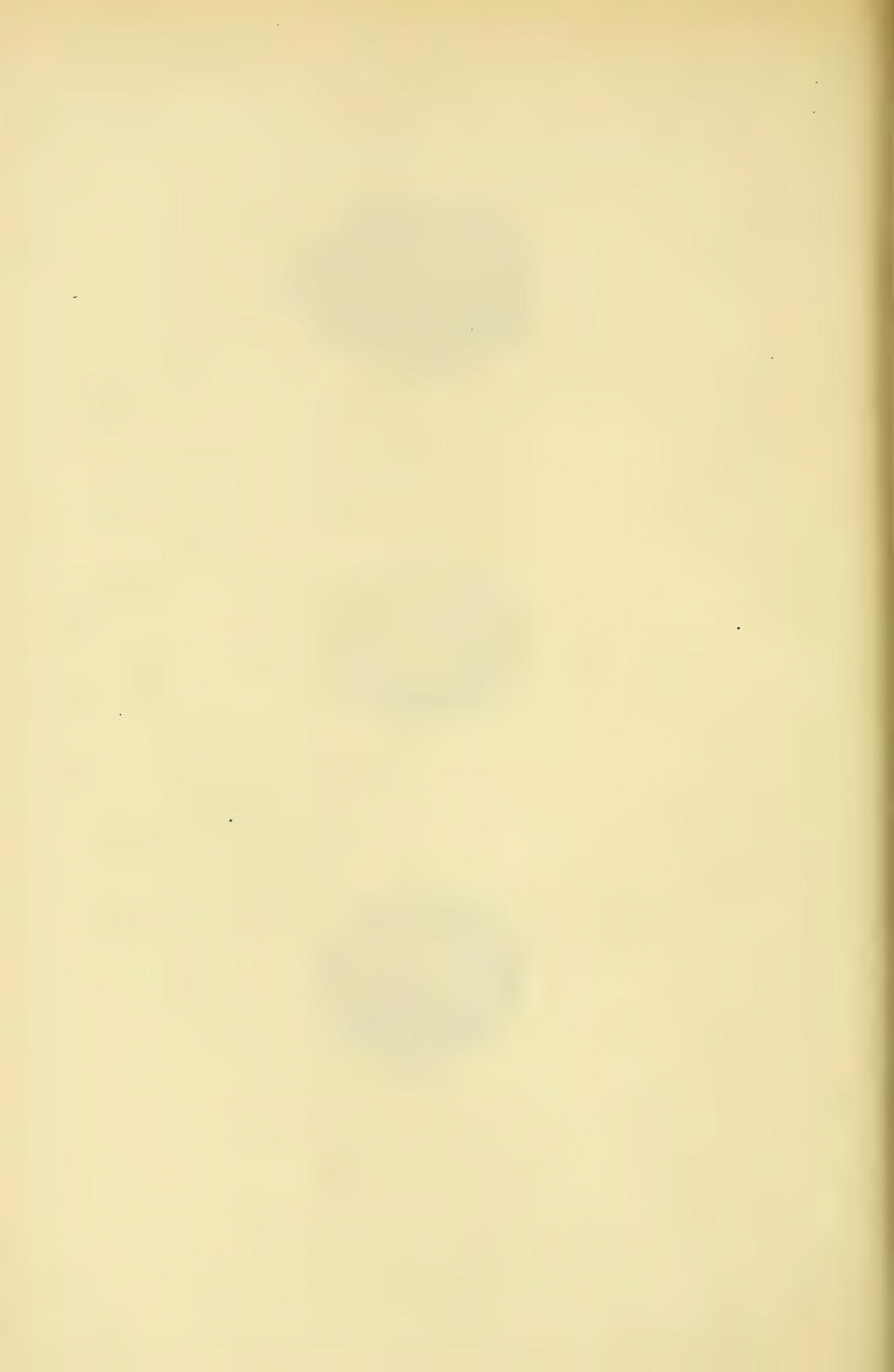
"Although I felt certain that I had seen a pair of this species near Seville in April 1869, I was not able to identify it positively until this year, when on the 19th. and 20th. of May I found it in great abundance at the Island of Dragonera, off the west of Mallorca. This rock, for it is little more, is in appearance very similar to Gibraltar, though of somewhat less elevation, being only eleven hundred and eighty feet from the level of the sea to the base of the lighthouse, which is perched on a summit.

As the Falcons fly very high it is not easy to obtain specimens; for though they hawk for food over the sloping side of the rock, it would require a prolonged stay to get a shot with a chance of the bird falling



1. ELEONORA FALCON.

2 & 3. LESSER KESTREL.



on land. When sitting with my legs dangling over the precipice a little below the highest peak, these birds passed backwards and forwards within a few yards, as thick as Swallows on a summer's evening. They were in the uniform sooty and Hobby-like plumage, in about equal numbers; many of the latter from their size I judged to be females. One of the fishermen informed me that he had once found a clutch of three eggs which he described correctly, and which of course he had eaten; but the majority of the nests placed in the holes of the sheer precipice are perfectly inaccessible, so much does the upper part overhang. The Rock Pigeon (*C. livia*,) of which there were great numbers did not show the slightest fear of these Falcons. The fishermen call them 'Esparver.'

A fine adult male in the Norwich Museum is in colour of a nearly uniform dark chesnut, rather lighter underneath. The quill feathers darker, nearly black above, shading off to a lighter colour below, and marked by indistinct elongated spots. The feathers of the under parts are fringed with a reddish tint, more particularly the throat and under the cheeks, the thigh feathers and under tail coverts. The tail is round, six inches long, and the same colour as the rest of the body, but barred underneath with nine or ten rows of darker tints. Cere, tarsi, and feet are said to be greenish yellow; claws black.

The female, which is labelled by M. Verreaux as in immature plumage, is so exactly like the Hobby, that a minute description is unnecessary. It has, however, a more general reddish tinge, is larger, and the beak not only more robust, but entirely different in shape when compared with that bird.

This bird is not figured in Gould's "Birds of Europe." It is well illustrated in Dresser's "Birds of Europe."

In the first edition I figured a variety of the egg from Thienemann. Mr. Dresser in his "Birds of Europe," said the variety was new to him; but I have one collected by Krüper, in my collection, exactly like it. I figure now a more typical egg taken by the same distinguished oologist in Greece, and which is also in my collection.

The following remarks were made upon this bird in the supplement to the first edition:—

"In the first volume, page 44, I have given a figure of the adult of this species, (from Bonaparte's "Fauna Italica,") which, though somewhat stiff in its attitude, is, I believe, a very good drawing of the bird. It varies, however, very much in plumage, and owing to its unfortunate confusion with *F. concolor*, Temm., many erroneous descriptions and figures have found their way into ornithological works. Thus Heuglin, in his List of Birds collected on the Red Sea, (Ibis, vol. i, p. 338,) gives *F. eleonoræ* as synonymous with *F. concolor*, Rüppell,

and describes the old male as "black schistaceous grey." Professor Blasius, however, (*Ibis*, vol. ii, p. 432,) is given as an authority for stating that the eggs of the birds described by Heuglin as *F. eleonoræ*, from the Archipelago of Dahalak, were those of *F. concolor* and not *F. eleonoræ*. There is also a tendency on the continent towards the belief in the identity of the two birds. Swainson, however, who was a most accurate observer, in describing *F. concolor*, (*Birds of Africa*, vol. i, p. 112,) remarks that it is seldom we meet with a Hawk which can so readily be distinguished from all others by its peculiar "deep slate colour, somewhat paler beneath, and with a brownish tinge in some parts of the upper plumage, etc."

Blasius maintains the perfect distinctness of the two birds in his list of 1861, and assigns *F. concolor* a European locality in Spain. Mr. Gurney writes, "There is no doubt as to the distinctness of *F. eleonoræ* and *F. concolor*, the latter of which I have never seen from any European locality: both species occur in Eastern Africa and Madagascar." M.M. Jules Verreaux and O. Des Murs have both attempted to prove the identity of the two birds in the "*Revue et Magasin de Zoologie*," for 1862.

In his "*Richesse Ornithologique du Midi de la France*," M. Jaubert describes four different plumages which he says the bird assumes during the first four years.—

"First.—The young of the year, when the plumage resembles that of the Hobby.

Second.—After the first year the head and all the upper parts become uniformly brown, without any red borders to the feathers; without the head marks or the reddish collar round the neck. This is the condition of the young as described by Gén  , and is produced, according to Jaubert, by a partial moult and the wear and tear of the back feathers.

Third.—After the second moult, when the bird is three years old, it assumes a livery in which "it may be recognised as the type represented in the "*Fauna Italica*" of Ch. Bonaparte, and of which our collections contain a large series, representing various grades of colour, bringing this bird by degrees to the fuliginous plumage, which is only a dress worn off down to the shaft, and this it will soon throw off to assume the plumage of the old bird, which is characterized by a dark brown colouring on all the upper part of the body, and by an analogous tint on all the anterior parts, the feathers of which are edged by a reddish border, with a spear-shaped spot on the flanks and sides. It is by the progressive diminution of this border that the bird becomes more and more brown and unicolorous."

These stages of plumage are well illustrated by M. Jaubert, in a



plate, containing three figures taken from life. To shew however the difficulty there is attached to this subject, I will copy the following from M. Jaubert's Supplement, just published, written a year or two after the above:—

“We owe to the kindness of M. Jules Verreaux a skin of *F. eleonora*, characterised by an unicolorous plumage of slate grey, denser on the mantle, wings, rump, and tail, slightly fuliginous on the throat and neck; all the feathers having the shafts darker and approaching to black; a black spot in front of the eye larger towards the base, where it forms a short moustache, which loses itself in the neighbouring tints, etc.”

The plumage is, according to M. Verreaux, that of the adult. What then are the plumages of a fuliginous black with slate shades only on the back, which we consider to belong to the old bird? Simply varieties? Melanisms comparable to those of certain Buzzards, according to Susemihl, who gives as the adult the one we call three years old? The variety then must be more common than the type, for all the specimens of our collections killed in the south of France are more or less black, but never slate grey.

“One of these birds taken on the sea near the Balearic Isles, and also placed in the Marseilles Museum, has a plumage like that of an adult Hobby; blackish brown above, yellowish white and russet below, with long black streaks; rusty on the thighs and abdomen. Though differing from the others this plumage is also considered to be that of three years, or the adult of Susemihl, which comes to the same thing! We are then obliged to admit that the blackish and slaty liveries are varieties probably belonging to an advanced age. The plumage of the Eleonora Falcon varies more than any other, and sometimes we find a similar tendency in the size.”

Lord Lilford has kindly sent me for the use of this work eight fine skins of this interesting bird, four of which I have figured. The first plate shews a very old male and female quite black. There are no traces of bars on the under surface of the tail of the male, and very slight ones on that of the female. The second plate contains a dark female just losing the Hobby-like plumage and a male in whom it is shewn in perfection—all killed at Torro and Vacca, on the south-west point of Sardinia, the end of May, 1874, by Lord Lilford.

RAPACES—DIURNÆ.

*FALCONIDÆ.*Genus *FALCO.* (*Linnæus.*)Sub-genus *TINNUNCULUS.* (*Vieillot.*)

LESSER KESTREL.

Tinnunculus cenchris.

<i>Tinnunculus cenchris,</i>	NAUMANN. GOULD.
<i>Falco tinnunculoides,</i>	NATTERER. TEMMINCK. BREE; first ed.
“ <i>tinnuncularis,</i>	VIEILLOT.
“ <i>gracilis,</i>	LESSON.
“ <i>Naumannii,</i>	FLEISCH.
<i>Cerchneis cenchris,</i>	CH. BONAPARTE.
<i>Faucon cresserellette,</i>	OF THE FRENCH.
<i>Röthelfalke,</i>	OF THE GERMANS.
<i>Falco grillago,</i>	OF THE ITALIANS.
<i>Primella</i> or <i>Buero,</i>	OF THE SPANIARDS.

Specific Characters.—Wings reaching to the end of the tail; upper plumage and quill feathers of the male without spot. Claws white. Length, male thirteen inches, female twelve inches.

THE Lesser Kestrel inhabits chiefly the eastern and southern parts of Europe. It is found in Hungary and Austria, and is very common in the kingdom of Naples, Sicily, and the mountains of the middle of Spain. Mr. Savile Reid found it common at Gibraltar. It occurs in the Morea, the north of Africa, the Crimea, and Switzerland. In France its principal localities are Languedoc, Provence, and the Pyrenees, particularly in the neighbourhood of that beautiful mountain town Bagnères-de-Bigorre. In France it is a summer visitor only. In Styria, according to the late Herr Seidensacher, it is not uncommon. It is rare in Savoy, common in Sardinia and Malta, rare in Bulgaria,



LESSER KESTREL.

not uncommon in Turkey, very abundant in Asia Minor and in Egypt, and it also occurs in South Africa during the rainy season.

The Lesser Kestrel nests among old ruins, or in the crevices of mountain rocks, particularly, according to Temminck, in Sicily, and in the neighbourhood of Gibraltar. Mr. Stafford Allen says that it breeds in Egypt in palm trees, sycamores, and old ruins.

Its eggs, according to Krüper, are four or five in number; very short, smaller than those of the Kestrel; of a reddish white, with a great number of little points and "fly spots" of a brick red, mingled together and mixed with small brown spots. It makes no nest when it builds in ruins.

It has the same habits as the Kestrel; lives upon coleoptera, grasshoppers, and small reptiles, rarely upon small birds.

The following is from Von Heuglin's "Ornithologie Nord Ost Afrika's:"—"The Lesser Kestrel occurs in Egypt, Arabia, Nubia, Kordofan, Abyssinia, as a bird of passage in the autumn and spring. Often large flocks congregate in acacia and date forests, and on the steppes. It remains in Egypt from the middle of March to the beginning of May, and appears on the opposite tract of country in September and October. Solitary pairs are said to breed in the walls of the fortifications of Alexandria. On the 18th. of February, says Vierthaler, a whole host of these Falcons flew over a low wood on the Blue Nile, which was full of grasshoppers." Heuglin notices a similar flight at Memphis in April, and in October at Kerew, in Bogos Land. It moults in November and December. It occurs in Algeria, South Africa, Syria and Asia Minor, south of Europe as far north as Germany, and Western Siberia. It also occurs in India, and breeds in the Neilgherries in May and June. Mr. Hume, without knowing anything about the egg itself, finds fault with my drawing in "The Birds of Europe," simply because the egg came from Moquin-Tandon. I have now a series of ten in my collection, and I can bear testimony to the truthfulness of my plate, and any practical ornithologist will bear me out in this statement.

I take Judge Hume's remarks in perfect good humour, as he is an enthusiastic and able ornithologist, and I like the manly, frank tone in which he writes. He must, however, bear in mind that in a work like my "Birds of Europe" I was obliged frequently to rely on the good faith of others, and this seldom failed me. In criticism he must therefore do the same kind of justice which he exercises in his own court, and be guided in his judgment *solely by the evidence before him*.

Male with head and nape, upper tail coverts, and all but the distal end of the tail blue grey; back, scapulars, and a greater part

of the wing coverts of a brick red, dark without spots; some of the large wing coverts and rump bluish ash. Primaries blackish brown, with a narrow edging of rufous; secondaries brownish grey, lighter on the back, and some of them edged narrowly with rufous; throat white; lower belly and under tail coverts yellowish white; chest and abdomen clear reddish russet, studded with small spots and longitudinal black streaks. Thighs rufous, without spots; tail blue grey, with a black band tipped with white at the end; cere, iris, feet, and toes, yellow; claws white.

The female differs from the male considerably, a fact upon which, following Temminck too closely, I in the first edition was led into error. I take from Mr. Dresser's elaborate description the following:—"Adult female. Tawny red, the crown longitudinally marked with narrow black shaft stripes, becoming broader on the back of the neck; lores and indistinct eyebrow whitish; cheeks silvery white; feathers round the eye black. Scapulars and interscapulars barred transversely; wing coverts the same, with but one of a paler red; lower part of back, rump, and upper tail coverts rather more narrowly barred and somewhat tinged with grey; quills brown, dirty white on the inner web, which is irregularly notched and barred; the secondaries rufous, barred with brown like the back; tail pale fawn, irregularly banded with brown, the last bar before the tip of the tail black; throat, abdomen, and thighs fulvous, unspotted; breast, yellowish fawn, the shafts of the feathers on the upper part distinctly marked with longitudinal lines of brown, the lower part of the breast thickly spotted, the flanks more so, and the shafts indicated by a broad black line, widening out towards the apex of the feather; bill, feet, nails, and iris as in the male."

The young somewhat resembles the female, but has the two central tail feathers entirely grey.

Mr. Dresser has a beautiful illustration of an old and young male. He will now rank among the authors he quotes, all of whom, except Naumann and Geoffrey St. Hilaire, have only illustrated males, namely—Gould, Werner, Bree, and Fritsch.

The illustrations of the eggs are from specimens in my own collection, the darker sent to me by Herr Seidensacher from Cilli, the lighter variety was taken by Herr Glitzch in Southern Russia.



LITTLE RED-BILLED HAWK.

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus—FALCO. (*Linnæus*.)Sub-genus—ASTUR, (*Bechstein*.) MELIERAX, (*Gray*.)

Sub-generic Characters.—Wings short, reaching to about two thirds of the length of the tail; first quill feather much shorter than the second, the third nearly equal to the fourth, which is the longest. Tarsi long; toes of moderate length, the middle one the longest. Claws much bent and pointed.

LITTLE RED-BILLED HAWK.

Astur Gabar.

<i>Falco Gabar</i> ,	LATHAM; Ind. Orn. Sup.
<i>Epervier Gabar</i> ,	DAUDIN; Tr. d'Orn., ii, p. 87.
<i>Astur Gabar</i> ,	LE VAILLANT. KAUP.
<i>Nisus Gabar</i> ,	CUVIER; Regn. An., i. p. 321.
<i>Sparvius Niger</i> ,	VIEILLOT; Gal. des Ois, i. 22.
<i>Accipiter Niger</i> ,	GOULD; B. of Australia, pt. 3. pl. f.
<i>Micronisus Gabar</i> ,	GRAY; Gen. of Birds.
<i>Le Gabar</i> ,	LE VAILLANT.
<i>Red-legged Falcon</i> ,	LATHAM.

Specific Characters.—Cinereous, paler on the chin, throat, and breast. Body, thighs, and inner wing coverts white, with numerous grey bars. Tail with four blackish bands; base and tail coverts pure white; feet and base of the bill red; has a musical whistle.

Measurement.—Length of adult male in Norwich Museum, twelve inches. Length of wing seven inches and a half.

THIS elegant little miniature Goshawk, said by Schlegel to occur in Greece, and Malta is given as another European locality by the late lamented Mr. Strickland. Degland, however, doubts whether it

has ever occurred in Europe, and omits it from his list; but he gives no reasons for his doubt, and as in addition to the above authorities, Mr. Gurney writes me he has no reason to disbelieve the statements of its occurrence in Greece, I introduce it here.

Mr. Gurney informs me that this bird has a musical whistle, and it will therefore belong to the sub-genus *Melierax* formed by G. R. Gray in 1840, with two, if not three, other species which are known to have a peculiar musical whistle. I have therefore added the sub-genus below that of *Falco* in the heading of this notice.

I have deviated a little from the arrangement of M. Temminck, in placing the sub-genus *Astur* before that of *Aquila*. In this I have followed Schlegel, and I shall do the same with the only species I am called upon to describe of the sub-genus *Circus*. There are, I think, many sound reasons why these sub-genera should be close to each other. *Falco* and *Astur* contain the most typical or perfect divisions of the family, while the Harriers form a good passage from the Hawks to the Eagles.

Falco Gabar is a native of eastern, southern, and western Africa, where it was discovered by Le Vaillant, the end of the last century. He says it was not uncommon; that it built in the fork of a high tree; and that its egg, like that of its congener the Goshawk, was white.

The following is from Hueglin's "Nord Ost Africas:"—"This bird, which is called by Sundeval *Micro-nisus niloticus*, belongs in North-East Africa, to the commoner birds of prey. It is found in cultivated lands and on the islands of the Nile, in Nubia, Sennar, and in the Abyssinian coastland, on the Marab, in Takah and Kordofan; more rarely on the Upper Bahr-Abiad. On the other hand, it is not observed in the forest region or the tableland of Abyssinia." Its most northern boundary, according to Heuglin, was between Wadi-Halfa and Der; Schlegel says a specimen was killed at Suez. It takes up its position as a resident bird, principally in date plantations in pairs and families. It is idle in its habits rather than bold, and its flight is heavy; but it is not at all shy. Several pairs keep true together through the whole year, and the male at pairing time (July and August) becomes in a high degree excited, uttering notes of endearment, and hovering about the neighbourhood where the female has settled. Its cry sometimes reminds one of the Singing Hawk. The nest is placed between the leaf stems of date palms and on the crowns of acacias. Its food, in which it is not particularly choice, consists of the remains of small mammals, singing birds, grasshoppers, lizards (species of *Julus*), and cockchafers. It is a true African species, being found in the west and south as well as in the east.

An adult male in the Norwich Museum, has the head, nape, and back of a uniform greyish brown or dark slate-colour; chin, throat, and chest of a lighter grey; the belly, thighs, and under wing coverts white, with delicate, thin, transverse bars of grey. Primary quill feathers hair brown, barred above and below with a darker tint, the tips being conspicuously margined with white. Tail coverts (upper and lower) white; tail quill feathers white, with three or four broad dark hair brown transverse bars on each feather.

The cere, with basal half of bill and legs, are of a bright red.

In the young bird the under parts are more tinged with rufous, and the entire upper surface is rufous brown, except the tail coverts, which are white as in the adult.

I have preferred Swainson's English designation of this bird to that of Latham, as we have already a "Red-footed Falcon" in the British lists.

This bird is not figured in Gould's "Birds of Europe."

My figure of this bird is from a beautiful drawing with which we have been favoured by Mr. Reeve, the Curator of the Norwich Museum. It is an adult male from South Africa, and about half the natural size. It forms one of the magnificent collection of *Falconidæ* in the Norwich Museum.

RAPACES—DIURNÆ.

FACONIDÆ.

Genus FALCO. (*Linnæus*.)Sub-genus MICRONISUS. (*Gray*.)

Sub-generic Characters.—Beak short, compressed; festoon on margin of upper mandible not very prominent. Tarsus shorter than in *Accipiter*, stout, with prominent scuta in front, and the reticulated scales on the sides distinct; inner toe about equal to first joint of the middle and whole length of the hind toe.

LEVANT SPARROW-HAWK.

Micronisus brevipes.*Micronisus brevipes*,SEVERZOW; Bull. S. Imp. Moscow, 1850,
pl. 1, 2.*Falco Gurneyi*,

BREE; 1st. Edition Birds of Europe.

" *sphenurus*, (*part*)

GURNEY.

Specific Characters.—Plumage above in the male dark grey, approaching to black; below greyish white, thickly barred transversely with rusty red. The female lighter above, and the cross bands reddish brown, and more widely separated from each other. Length of male fourteen inches and a half; from carpus to tip eight inches and a half; tarsus one inch and four fifths; tail seven inches; middle toe one inch and two fifths; beak from forehead along curve to tip ten lines. Female, length fourteen inches and a half; carpus to tip nine inches and a half; tarsus two inches; tail seven inches; beak eleven lines.

MR. J. H. GURNEY, with his usual kindness and liberality, sent me skins marked *Micronisus sphenurus*, Rüp., as he suspected that this bird might have been mistaken for *M. badius*, Gm., and so have led to the introduction of the latter into the European lists. Upon com-



LEVANT SPARROW-HAWK

Adult male and female.





THE UNIVERSITY OF CHICAGO

paring the skins of Mr. Gurney with the plate and description of *Accipiter sphenurus*, in Rüppell's "Systematische Uebersicht der Vögel Nord Ost Africas," it became evident that they did not refer to that species, as I will shew presently. Mr. Gurney had himself neglected to compare the skins with Rüppell's description, but fully admitted that they could not be the same, and expressed his opinion that the species was undescribed.

In the first edition I endorsed this view, and figured the bird as *Falco Gurneyi*. Further enquiries however have elucidated the fact that the bird had previously been described as *Micronisus brevipes* by Severzow. My name will therefore sink.

The skins sent to me by Mr. Gurney are four in number,—male and female adult, and male and female young. From *Micronisus badius*, *M. brachydactylus*, and *M. polyzonoides*, they are at once distinguished by their greater size and the more marked sexual differences, which differences are rendered quite positive when examined more closely. I will first give the measurements of the four skins of the Levant Sparrow-Hawk compared with the above-mentioned three, as well as of *Accipiter nisus*, to which form they approach more closely than the others, and also of *Accipiter sphenurus* from Rüppell's work.

MEASUREMENT IN INCHES.

NAME AND MARKS.	Length.	Carpus to tip of Wing.	Tarsus.	Tail.	Middle Toe.
Levant Sparrow-Hawk.					
1. "No. 3, Asia, male adult, Lauretta, Beyrout."	14 $\frac{1}{2}$	8 $\frac{1}{2}$	1 $\frac{1}{2}$	7	1 $\frac{3}{4}$
2. "Syria, female adult, Verreaux, 40939."	14 $\frac{1}{2}$	9 $\frac{3}{10}$	2	7	1 $\frac{3}{4}$
3. "No. 8, young female, Lauretta, Beyrout."	15 $\frac{1}{2}$	9	1 $\frac{7}{10}$	7	1 $\frac{3}{4}$
4. "Male young, Lauretta, Beyrout."	13 $\frac{3}{10}$	8 $\frac{3}{10}$	1 $\frac{3}{10}$	6 $\frac{1}{2}$	1 $\frac{1}{2}$
<i>Accipiter sphenurus</i> , Rüppell's description.	11 $\frac{5}{8}$	6 $\frac{2}{3}$	1 $\frac{7}{12}$	5 $\frac{7}{12}$	
<i>A. sphenurus</i> , male adult, from Rüppell's figure.	10 $\frac{3}{4}$	6 $\frac{1}{4}$	1 $\frac{1}{2}$	4 $\frac{3}{4}$	
<i>A. nisus</i> , male adult, my own.	12	7 $\frac{1}{2}$	2	6 $\frac{1}{2}$	1 $\frac{1}{2}$
" young female, my own.	15 $\frac{1}{2}$	9 $\frac{1}{2}$	2 $\frac{1}{2}$	8 $\frac{1}{2}$	1 $\frac{1}{2}$
<i>A. badius</i> , (from Mr. Gurney.)					
1. "Gould, India, male." Adult.	11 $\frac{3}{10}$	7 $\frac{3}{10}$	2	6	1 $\frac{1}{2}$
2. "Female, India, Puzudaki, Paris." Adult.	13 $\frac{3}{5}$	8	2	7	1 $\frac{1}{2}$
<i>M. brachydactylus</i> ,* from Mr. Gurney.					
1. "Female, 3326, (3937) Verreaux, adult female."	12	8	1 $\frac{7}{10}$	6	
2. "44423, male young."	12	8	1 $\frac{3}{10}$	6	
<i>M. polyzonoides</i> .					
1. From Mr. Gurney. "Male, Elephant's Vley, Damara Land." Adult.	10	6 $\frac{1}{2}$	1 $\frac{1}{2}$	5	
2. "Female, River Obovunga, Damara." Adult.	11	7 $\frac{1}{2}$	1 $\frac{7}{10}$	6	

By glancing over these figures it will be observed that the Levant Sparrow-Hawk is in some respects quite as large, if not larger than

* This is only a synonym of *M. sphenurus*. They are the same birds, and the latter name has priority.

our own Sparrow-Hawk, but that in length of tarsus and middle toe it is constantly smaller; and this constitutes the great difference between *A. nisus* and that series of African and Asiatic species of which the subject of the present notice is the largest bird. But the measurements, while valuable specific marks, will not alone constitute species. There is, however, a marked difference between the Levant Sparrow-Hawk and any of those mentioned in the above table.

In addition then to the measurements, the male adult Levant Sparrow-Hawk differs from that of *A. nisus*. 1.—In the darker upper plumage. 2.—In the closer barring of the under plumage. 3.—In the under wing coverts being lighter rufous, and less barred, and by the deep black *unicolorous* primaries beneath, those of *A. nisus* being barred to the end. 4.—By the two first under tail feathers being unicolorous grey, while those of *nisus* are strongly barred. 5.—By the primaries being black brown and unicolorous above, while those of *nisus* are lighter, and distinctly barred. 6.—The cheeks of the Levant Sparrow-Hawk are slight grey, while those of *nisus* are rufous.

From the female of *M. brevipes* that of *A. nisus* differs principally in the general character of the under plumage, which is rufous brown and white, not black and white; the bars on the chest and body are broader, and on the thighs they become almost as rufous as the bars on the male.

From the young of *M. brevipes* those of *A. nisus* differ most markedly in the deep light brown borders of the primaries and upper tail feathers, which are absent in *A. nisus*, while in the under plumage the large oblong longitudinal brown spots, and the russet bars on the thighs and under tail coverts at once proclaim their distinctive characters.

It is hardly necessary to say anything about the distinction of this bird from *M. badius*, *sphenurus*, or *polyzonoides*, as it is altogether larger and different; and I shall point out some of the distinctions between these birds when treating of *M. badius*.

Heuglin refers this bird to the well-known *F. badius* of India; and I believe Dr. Sclater at one time held the same opinion. Heuglin remarks: "I hold *Nisus brevipes*, Severzow, from Southern Russia and Asia Minor, if even not specifically distinct, yet as a large northern con-species of *N. badius*; the colouring and its distribution are exactly the same. A male from Smyrna measured, from carpus to tip of wing seven inches seven lines; tail six inches one line; tarsus one inch nine lines." Whatever may be the relationship between *Falco*—or perhaps more properly speaking *Micro-nisus brevipes* and *badius*—I am confident that the *Falco Gurneyi* of my book is not the latter, and I have given my reasons at length. I wrote to Von Heuglin expressing this, and



1. LEVANT SPARROW-HAWK.

2,3. PALE-CHESTED HARRIER.

also to Mr. Gurney, who supplied me with the specimens figured in my book, and who then considered the bird named by me *F. Gurneyi* as a new and distinct species. I need not detail the interesting correspondence which ensued; but I may give the result. Mr. Gurney, whose authority is very high, doubts whether *M. badius* exists in Africa and Arabia. He has never seen it from any locality West of Beloochistan, and he thinks the following the position of the two birds:—

1. The larger species, *Astur* (or *Micro-nisus*) *brevipes*, Severzow, *Falco Gurneyi*, Bree. Found in Southern Russia, Greece, Asia Minor, and Syria.

2. *Astur* (or *Micronisus*) *badius*, Gm. *Astur* (or *Micro-nisus*) *dussumierii*, Tem. Not found West of Beloochistan.

Heuglin considers *A. badius* of North-East Africa the same as *A. badius* of India and *Micronisus sphenurus* (Gray); while he thinks my *F. Gurneyi* a larger race of *A. badius*. He thus defines in his letter to me what he considers the position of my bird.—

“*Astur brevipes*, Severzow, Bull. Ac. Mos. 1850, ii., p. 234; *Accipiter sphenurus*, Gurney, Ibis, 1859, p. 390; *Falco Gurneyi*, Bree, Hist. Birds of Europe, iv., 463, Ibis, 1863, p. 464; *Nisus brevipes*, Seidensacher (ova); *Nisus badius*, de Filippi-Viezy in Persia, p. 345 (?), Hartl. and Finsch, O. Afr., p. 84 (nota); Krüper Cab. Journ. 1869, p. 25.”

Micronisus brevipes breeds in Greece, and I give a drawing of one of its eggs, which have a smooth ivory surface, from my collection. It was collected by Dr. Krüper. It builds in trees, sometimes high up, at other times lower down. The number of eggs is four, sometimes three. They are quite unlike those of the Sparrow-Hawk, being smaller, rounder, and quite white.

My figures are the adult male and female, and the young male and female kindly sent me by Mr. Gurney, and drawn to a scale.

The adult male has the upper plumage dark slaty brown, with some white spots on the nape and upper tail coverts. Primaries nearly black, and barred with lighter black on the basal half beneath. Below the general tint is rufous, lighter on the crop; the chin and sides of the head are light slate-colour; the rest of the body, thighs, and under wing coverts barred with ferruginous and silvery grey; under tail coverts white. Tail above dark slaty brown, below lighter; the two central feathers, both above and below being unicolorous; the others silvery grey, broadly barred through the feathers with black. Beak black; tarsi and toes yellow; claws black.

The female has the upper plumage lighter than that of the male, and the upper tail feathers have traces of black bands, while all the

under ones are barred through. Primaries, nearly black, barred on their inner webs with white the whole length of the feather. Chin and sides of the head grey, with light brown bars and spots. The rest of the body, under wing coverts, and thighs barred with hair brown and silvery grey; under tail coverts white, slightly barred with brown. Beak black; tarsi and toes yellow.

Young birds of the year have the head prettily striped longitudinally with rich brown of two shades, and white. The upper plumage rich dark brown; the edges of the primaries, wing and upper tail coverts, bordered with fawn-colour. The chin is white with a few longitudinal dark streaks; the crop and chest broadly marked with brown and white longitudinal spots, which assume a crescentic shape and lighter colour on the abdomen, thighs, and under tail coverts; under wing coverts above fawn-colour, below cream-colour, barred with grey and brown on all the feathers, less distinct on the two above and below; beak horn-colour; tarsi and feet yellow.

THE Calcutta Sparrow-Hawk has been introduced into the European fauna by Professor Blasius, not as an accidental visitor, but as a constant inhabitant, ("Verzeichniss der Vögel Europa's.") Not being able to find any record of its occurrence in Europe, and Mr. Gurney, with his great knowledge of this class of birds, being unable to refer me to any instance—except in one doubtful case—of its capture on the continent, I wrote to Professor Blasius, and asked him to refer me to his authorities. Not having received any answer to my letter—which I am far from attributing to an act of discourtesy on the part of one naturalist towards another—I had no alternative but to decide for myself whether I would admit this bird into my book or not. I have not done so for the following reasons:—

There are two Sparrow-Hawks very closely allied to each other, as well as with the bird last described, namely:—

Micronisus badius, Gmelin, only according to Mr. Gurney found in India, and *M. sphenurus*, Rüppell, which is the *M. brachydactylus*, Swainson, which occurs in Africa. It is quite clear that these birds have got mixed together, and that *M. sphenurus* or *M. brevipes* have been mistaken for the true Indian *M. badius*.

Dr. Krüper who has taken the eggs of *M. brevipes* in Greece, marks them *M. badius*, and this leads to the inference that Blasius meant the former when he introduced the latter into the European lists. By figuring *Micronisus badius*, Gmelin, I must not therefore be considered as giving it a place in European lists any more than



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COMMON NIGHTHAWK. W-TAWNS.

ACCIPITER. COMMON NIGHTHAWK.

M. sphenurus. I merely give figures of these birds that my readers may be assisted in coming to a correct conclusion in determining the true position of these Sparrow-Hawks.

Including a small species figured by Smith, ("Birds of Africa,") as *Accipiter polyzonoides*, they will stand thus:—

African type	{	Micronisus polyzonoides " sphenurus = M. brachydactylus	}	Small race, Africa.
Asiatic type.		Micronisus badius		Median race, India.
European type.	{	Micronisus brevipes Accipiter nisus	}	Large race, Europe.

Mr. Blanford ("Geology and Zoology of Abyssinia,") gives an account of *M. sphenurus*, and its differences from *M. badius* are clearly pointed out. He says—

"*Micronisus sphenurus*. *Accipiter brachydactylus*, Swainson; *Nisus sphenurus*, Rüppell; *Micronisus guttatus*, Heuglin, "Ifur. O," 1861, p. 430; *Nisus badius*, Heuglin, "Orn. Nord. O. Africa," No. 45.

Has the "iris yellow or greenish yellow in young, orange or scarlet in old birds; cere yellow, legs dark yellow; bill black. In young birds the breast is spotted, in adults banded, the changes precisely as in *N. badius*."—(Jerdon, B. Ind., vol. i., p. 48.)

"When I saw this bird in Abyssinia it always appeared to me very much smaller than the common Indian Shikra, (*N. badius*, Gm.) and the measurements appear to bear out this view, although Schlegel and Von Heuglin unite the two races. The following are measurements of three specimens of *N. sphenurus*.

	Length.	Wing.	Tail.	Tarsus. (In inches.)
Old female	12	7.4	6.5	1.7
Young female	12.75	7.5	6.2	1.7
Young male	11	7	5.3	1.6

Those agree with Rüppell's and Heuglin's measurements, but Jerdon gives those of the Indian *M. badius* thus:—

Female	14 to 15	8½	7	2 nearly
Male	12½	7½	5½	

I think we may without any doubt, then, dismiss *M. badius* from the European list, and agree with Mr. Gurney, who says that having compared with Mr. Blanford the Abyssinian ornithologist's specimens of the Indian and African so-called *M. badius* and also with *M. sphenurus*, he is confirmed in his opinion that the Indian and African races are distinct."

The Calcutta Sparrow-Hawk, or Brown's Hawk, is well known as the Shikra, and is common throughout the whole of India. "It frequents," says Mr. Jerdon, ("Birds of India," p. 49, vol. i,) "open jungles, groves, gardens, and avenues. It either takes a low stealthy flight along the edges of a wood, garden, or hedgerow, and pounces on any unwary bird or lizard, or soars high in circles, and pounces down when it sees any prey. Its general food appears to be lizards, but it frequently seizes small birds, rats, or mice, and sometimes does not disdain a large grasshopper. It is more commonly trained than any other Hawk in India. It is very quickly and easily reclaimed, and though not remarkable for speed, can yet seize quails and partridges, if put up sufficiently close. It is, however, a bird of great courage, and can be taught to strike a large quarry, such as the common crow, the small grey hornbill, the crow pheasant, (*Centropus*,) young pea-fowl, and small herons."

My figure is a male from India, kindly sent me by Mr. Gurney. It is in adult plumage, but has not attained the five years old livery described by Mr. Jerdon. It is one of the birds referred to in the table. For the sake of comparison I have also given a copy of Rüppell's figure of *Accipiter sphenurus*, reduced to the same scale of one third natural size, (Vide "System. Uebers. der Vög. Nord. Ost. Africas," pl. 2.)



PALE-FOOTED HARRIER.

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus—FALCO. (*Linnæus*.)Sub-genus—CIRCUS, (*Savigny*.) GLAUCOPTERYX, (*Kaup*.)

Sub-generic Characters.—Tarsi long and slender; body tall and slim; tail long and rounded; wings long; first quill feather shorter than the fifth, the second a little shorter than the fourth, the third or fourth the longest; beak of medium size; cere large, covering more than a third of the beak.

PALE-CHESTED HARRIER.

Circus pallidus.

<i>Circus pallidus</i> ,	SYKES; Proceedings of Zoological Society, April, 1832.
“ “	KEYSERLING AND BLASIUS.
“ “	SCHLEGEL. DEGLAND.
<i>Falco pallidus</i> ,	TEMMINCK; Man., vol. iv., p. 595.
“ “	BREE, first edition.
<i>Circus Swainsoni</i> ,	SMITH. KAUP.
“ <i>albescens</i> ,	LESSON.
“ <i>dalmaticus</i> ,	RÜPPEL.
“ <i>cinereus</i> ,	CH. BONAPARTE.
<i>Strigiceps pallidus</i> ,	CH. BONAPARTE.
<i>Busard meridional</i> ,	CRESPON.

Specific Characters.—Head of male not spotted with pale brown; no dusky streaks on the breast; rump and upper tail coverts white, and barred with brown ash.—SYKES.

Measurement.—Length of adult male in the Norwich Museum seventeen inches, length of wing thirteen inches.

WE are indebted to Colonel Sykes for the determination of this species. He was not, however, aware, when he published his paper in the “Zoological Transactions” for 1832, that the bird occurred in

Europe. It had previously been confounded in India with *C. cyaneus*, the Hen Harrier of British lists. Colonel Sykes clearly pointed out the distinctions between the two species, and which are abbreviated at the head of this notice. Mr. Gould has a fine figure of the male bird in his "Birds of Europe," but it deviates from Colonel Sykes' type in having dusky streaks on the breast, showing that it represents a specimen not fully adult.

M. Temminck appears to have been the first who recorded the occurrence of this bird in Europe. Since then it has turned up plentifully in Spain, and it breeds in the Dobrudsha and South Russia. It probably has its head quarters in Africa, being found accidentally in France, Germany, and Italy. Southwards it extends to the Cape of Good Hope, and eastward to China.

In modern days ornithologists have changed the venue in regard to the charge of resemblance between *Falco cyaneus* and *F. pallidus*. The latter is now held by some to be so nearly like *F. cineraceus*, (Montagu's Harrier,) that Schlegel denies its specific distinction from that bird. I am at a loss, however, to comprehend how such an opinion has been arrived at by so eminent a naturalist as Schlegel. The decided marks of distinction pointed out by Temminck and Colonel Sykes, particularly the bars on the rump, and the number of specimens that have been taken both in Europe, Africa, and Asia, all having the distinctive characters alluded to, form, I think, sufficient evidence to settle the claim of this bird to the position assigned to it by all naturalists, with the exception of M. Schlegel.

The Pale Harrier is said by Colonel Sykes to feed principally upon lizards; that it inhabits wild rocky plains, that the sexes are never met with together, and that it builds in high trees.

The adult male, according to Temminck, has all the plumage generally pale; the grey colour very clear; the top of the head in the male has no brown and white spots; the rump and upper tail coverts are marked with grey bars; the bars on the side tail quills are six or seven, and more strongly tinted with reddish. Head, mantle, and wing coverts of a pale grey; quills white at the base, passing into deep brown at their extremities, and margined externally with greyish; all the parts below, from the throat to the abdomen, of a pure white, more or less varied according to age, with fine brown streaks disposed over the chest and belly. Beak blue; cere and feet yellow; iris greenish yellow.

The adult female has the plumage like that of the Hen Harrier, except that the colours are two shades paler: the tail is crossed by six large brown bars, that of *C. cyaneus* having only four. Mr.

Gurney greatly doubts whether either of these differences are constant.

In the above description it will be seen that Temminck differs from Colonel Sykes, as to the brown streaks on the chest. Gould's figure was taken from a bird sent to him by M. Temminck. This discordance may probably be accounted for by the fact as stated by Temminck, that these marks are more or less visible according to age.

I figure two eggs of this bird in my own collection, one from the Volga, and the other from South Russia. As a rule they are white, but frequently spotted and blotched with rufous. They do not vary much in size from those in the plate.

RAPACES—DIURNÆ.

*FALCONIDÆ.*Genus AQUILA. (*Brisson.*)

Generic Characters.—Beak strong, not bending suddenly from its base; feet strong and sinewy; tarsi naked or covered with feathers; toes strong, and armed with powerful and much-curved claws. Wings long; the first, second, and third quill feathers the shortest, the first short, the fourth and fifth the longest.—TEMMINCK.

IMPERIAL EAGLE.

*Aquila heliaca.**Aquila imperialis,*“ *heliaca,*“ *mogilnik,**Falco imperialis,**Aigle de Thebes,*

CUVIER. GOULD. SCHLEGEL.

SAVIGNY. BONAPARTE.

GMELIN. LATHAM. GRAY.

TEMMINCK. BECHSTEIN. BREE, 1st. ed.

OF THE FRENCH.

Specific Characters.—Five scales on the last joint of the middle toe; only three or four, according to age, on the others. Some of the scapularies white, or tipped with white.

Measurement.—Length of adult male thirty inches. Length of adult female about thirty-three inches.

THE Eagles form M. Temminck's second division of the *Falconidæ*, the typical Falcons or noble birds of prey being the first. The separation of this family into two classes—the noble and ignoble birds of prey—had its origin in the pastime of Falconry. A higher principle, however, that arising from structure, especially in the beak and wings, and a greater amount of intelligence, places the Falcons, according to the strict rules which guided men like Temminck and Cuvier, before the larger and more powerful Eagles.

The Eagles, particularly the large species, are from five to six years in arriving at their perfect plumage. Their vision is very acute, and



IMPERIAL EAGLE.

they are provided with a peculiar membrane, by the assistance of which they can see against the sun. Their nest, termed an eyrie, is generally placed among inaccessible rocks. They mostly prey upon small live mammals and birds—some feed upon fish and insects.

Since the publication of my first edition, this bird has been divided into three sub-species, and the question, which is the most interesting one of modern ornithology, deserves a somewhat extended notice, although my limits will not allow me to do it full justice, and I must refer the reader, who desires further information, to the writings of the gentlemen whom I quote.

Some two or three years ago Dr. Cullen of Kustendji, sent me some skins of a large Striated Eagle, which he took to be *Aquila nævioides*. Mr. Gurney, and others who saw these skins, decided that they were those of the immature Imperial Eagle in its stage known as striated plumage. A difficulty, however, arose from the fact that one of these birds was killed from the nest, which was placed at the base of a large rock, and the eggs were sent with the skins. They are now in my collection. But the English naturalists who had studied the habits of the Imperial Eagle in Spain, where the young have no striated plumage, more particularly gave their opinion that the Imperial Eagle never bred in the immature striated plumage, and Mr. Dresser in his "Birds of Europe," stated that he considered Dr. Cullen's Tartar, who took the bird and eggs, had deceived him. Dr. Cullen, however, is perfectly certain that his Tartar did not deceive him. The eggs, one of which I figure, are certainly smaller and rounder than those of the Imperial Eagle. The bird was snared upon the nest, and was very fierce, one of the eggs being broken but not destroyed in the fray. As this is entirely a matter of belief in testimony, I must express my most decided conviction that Dr. Cullen's description is correct in every particular. Dr. C., however, himself states that he does not believe the bird to be an Imperial Eagle, and as confirmatory of this opinion, he says that neither his Tartar, a most experienced and trustworthy servant, nor himself, ever knew an Imperial Eagle to breed in the immature plumage.

The following are Dr. Cullen's different statements to me about the Striated Eagle, figured by Mr. Dresser as the young of the year of *Aquila mogilnik*. The skin passed from me to Mr. Gurney, who lent it to Mr. Dresser.

Dr. Cullen always called the Eagle *Aquila nævioides*, and for accuracy of transcription I will not alter this, but I do not by so doing assent to the designation.

"Kustendji, May 9th., 1871. I am very glad to be able to report

having secured by trapping on the nest a fine male specimen of the *Aquila navioides*. Its dimensions in the flesh, are, from tip of beak to end of tail, thirty-four inches. Length of wing, thirty-two inches. Beak, to angle of gape, three inches. Middle toe and claw, three inches. Hind toe and claw, two inches. The female, which was soaring near, was much lighter in colour, agreeably to its Turkish name Sari Kartal, or Yellow Eagle.

The nest was situated at the base of a large isolated stone or rock with small bushes round. It was rather small, but very similar in form and structure to that of *A. navioides* and *A. clanga*. It contained two eggs, one of which was unfortunately cracked by the bird itself in its struggles. It resisted capture most violently, its eyes glaring most fiercely, the feathers on the head and neck being erected like bristles, presenting a most formidable appearance; while at the same time it uttered a succession of loud shrill cries, resembling 'whirr-whirr-r-r.' The dimensions of the eggs are two and a half by two and a half inches. The young, as I have had an opportunity of noticing, are covered with a fine down of a very light colour."

In answer to this letter, I mentioned that the bird was considered by the authorities in this country to be the young of the year of *Aquila imperialis*. To which remark Dr. Cullen replies:—

"I cannot for a moment suppose that the *Aquila navioides* is the young of *A. imperialis*. The eggs are altogether different in form and colouring, and the bird itself in many most important particulars. I have never yet seen or heard of an Imperial Eagle nesting on the ground.

My Tartar's knowledge is self-taught, and he will not listen for a moment to the idea that a "Sari" or "Yellow Eagle" can ever become a "Biaz Omz" or "White-shouldered Eagle." It is to him I owe the discovery of the gular pouch of the Great Bustard. He had known of it for years. Though rudely expressed, I have never known more shrewd observations made by any one as to the habits of animals."

Again, when another similar skin (also in the Norwich Museum) was brought in by the Tartar, Dr. Cullen writes,—

"Kustendji, June 14th., 1872. I had a long talk with him. He says, it cannot be *A. imperialis*, which arrives at maturity in the third year, when the white spot appears on the shoulders, and the rest of the body is of uniform chocolate colour. He calls it "Biaz Omz Kartal," or "White-shouldered Eagle," and doubts altogether the possibility of this I am going to send you, or the one of last year, (see Dresser's plate) being a variety of *imperialis*. The one now brought in is a male about six or seven years old. The male and female

were hunting together, marked and coloured alike, and therefore no doubt a pair. He had often shown in the Great Bustard the difference in colour of the primaries as marks of the age of the bird; and any one from a casual look would not hesitate to say which would be the older birds. He is doubtless an empirical naturalist, knows nothing of system, but he is a man of very shrewd observation, and whose knowledge of the habits of animals is marvellously accurate. He is taking an interest in the question himself, and has carefully prepared the sternum. As *truth* is the point to be arrived at, I mention these particulars for the information of all interested in the subject."

In the meantime Lord Lilford and Mr. Howard Saunders, who have a most extensive knowledge of the Imperial Eagle, placed their large collection of skins of this bird in the hands of Mr. Dresser, and after the most careful examination, aided by Mr. Gurney and other well-known naturalists, it was the opinion of the gentlemen above mentioned that the Imperial Eagle of Spain was a distinct species, always to be known by the white on the back being confined to the shoulders of the mature bird, and the young having no striated plumage. They therefore defined the Spanish Imperial Eagle, as *Aquila Adalberti*, Brehm; his previous application of the name to *Aquila nævioides* having been discovered to belong to this bird, whose habitat is confined to Spain.

The bird found in the south-east of Europe, especially Turkey, they decided to be also distinct, and to be recognised as a young bird by having a striated plumage, and in its mature stage by the white feathers on the back being confined to the scapulars and none on the shoulders. This bird has been named *Aquila heliaca*, Savigny, and its habitat extends from Central Europe to China, and it is of frequent occurrence in India.

The third species is the plainer marked bird, supposed to be peculiar to India, known as *Aquila bifasciata*.

In the meantime the Indian naturalists, Mr. Hume, Mr. Brooks, and Mr. Anderson, had been working at the Eagles of India most assiduously.

Mr. Hume, in his "Scrap Book," has given us an elaborate description of the four different stages of plumage through which the Imperial Eagle (*A. heliaca*) passes, though in India every stage represents a year in the bird's life. These stages may be briefly defined.

First. A lineated stage, in which the under parts have broader or narrower pale centres to the feathers, and the upper parts with pale central stripes. (First year.)

Second. The leading character of this stage is to have two conspicuous white or fulvous white wing bands, while the whole of the head, neck, chin, throat, back, lesser scapulars, lesser wing coverts,

breast, abdomen, sides, leg feathers, axillaries, wing lining (except the greater lower wing coverts, which are darker) uniform brown. Lower tail coverts, white. (Second year.)

Third. This stage is characterized by a dark hair, or even at times umber brown, darkest above, and chocolate brown on the scapulars, with no pale bands on the wings, or tips to the tail feathers, and with numerous narrow, transverse, irregular grey bands on the latter; and with much brown mingled with the lower white tail coverts. Upper tail coverts, as the bird approaches the fourth stage, dark brown, only slightly tipped with white. (Third year.)

Fourth. The whole head, nape, cheeks, ear coverts, and sides of the neck, buff or orange buff; the back, scapulars, (except a few which are pure white in most, but all white in some specimens), upper tail coverts, wing coverts, primaries and secondaries, chin, throat, breast, abdomen, leg feathers, sides, axillaries, and wing lining, deep blackish brown. The upper wing coverts margined, and the upper tail coverts tipped with fulvous white. The lower tail coverts white, and a good deal of white mottling about the tertiaries, which are a pale brown. The tail grey, with a terminal black band, occupying fully two thirds of its visible surface, and above this a number of more or less brown bands, which sometimes do not coincide exactly at the shaft." (Fourth year. Perfect adult.)

The second stage in the above description is the bird to which the name *Aquila bifasciata* was given by Gray, considered here, mark by Mr. Hume, to be only a plumage stage of the true *Imperialis*.

In the "Proceedings of the Zoological Society for 1871," Mr. A. Anderson published a most interesting paper on the raptorial birds of India. On the Imperial Eagle he makes the following remarks:—"That the dark full-grown bird has the white scapulars. Compared with my plate in the first edition, he remarks:—

"First.—All three adult dark plumaged birds, have the same broad terminal band to the tail, but instead of the two distinct bars between that and the base of the tail, they had several indistinct and irregular wavy marks.

Second.—The Indian birds want the light colour *down the centre of* the back, though the head agrees well enough. They also want the light ochreous shade between the shoulders and sides of the neck.

Third.—The Indian birds are on the whole very much blacker, and the white on the scapulary region is not so conspicuous; in one specimen it as good as wanting."

In conclusion, he remarks:—

"The bird in the lineated stage is the most common in India, next

comes the double banded one *A. bifasciata*, then the plain brown stage with light head, and lastly the adult bird." Thus fully agreeing with the stages described by Mr. Hume. Mr. Anderson has also made public an important means of diagnosing the Imperial from the Spotted race of Eagles, namely, that in the former the "nostril is always elongated and vertical, wider at the base than at the tip; whereas in the latter they are a very broad ellipse, nearly circular. *I am indebted to Mr. Brooks for having pointed this out to me.*" Hitherto it will be remarked we have no indication that *Aquila bifasciata* is anything but a plumage stage of the true *Imperialis*, and Anderson's comparison with my figure shows that this is the bird known in Europe as *A. imperialis*.

Now comes one of the most startling discoveries in this interesting aquiline investigation. Mr. W. E. Brooks, C.E., of Assensole, one of the most enthusiastic ornithologists in India, published a paper in part 2 of the forty-second volume of the "Journal of the Asiatic Society of Bengal, 1873," to *prove* that the bird known in this country as *A. clanga*, Pallas, and more recently as *Aquila orientalis*, Cabanis, is nothing more nor less than the *Aquila bifasciata* of Mr. Hume's and Mr. Anderson's papers above quoted. This paper is so interesting, and will be of so much use in the future discussion of the question, that I shall print it entire when I come to treat of *Aquila bifasciata*. The only answer which this paper has hitherto received (Oct. 1873,) is in a communication read before the Zoological Society, in which Mr. Dresser argues that we have not yet sufficient information to come to the conclusion which Mr. Brooks has done, more particularly as regards the young stages of *Aquila orientalis*, in which opinion Mr. Gurney concurs, ("Ibis," part 4, 1873.) The fact is, however, that well-authenticated specimens of *Aquila orientalis* in a spotted condition do not exist; and many practical men, Mr. Howard Saunders among them, do not believe it has such a stage. It turns out that the dark supposed specimens of *Aquila nævioides*, alluded to by Mr. Gurney, as seen by Captain Elwes on the Bosphorus, ("Ibis," 1870, p. 67,) are identical with the *Aquila bifasciata* of India, and the *Aquila orientalis*, Cabanis.

Mr. Gurney, in his letter to the "Ibis," this month (Oct. 1873,) writes,—“Are the *A. orientalis* and *A. bifasciata* one and the same species? I can hardly think so, as though undoubtedly very nearly related, the specimens of *A. orientalis* which I have examined are *on the average* smaller and darker birds than the examples of *A. bifasciata* which have come under my notice.”

I have now laid the principle facts of this extraordinary controversy

before my readers, and they must form their own opinion whether the division of the Imperial Eagle into three species, *A. Adalberti*, *A. heliaca*, and *A. bifasciata*, is sound or not.

It is a mistake—a scientific mistake, to make any generalization square with our opinions, by throwing doubt upon facts in natural history without the strongest and most conclusive grounds for doing so. If the lineated bird, which has been figured as an immature *A. mogilnik* by Mr. Dresser, laid the eggs sent to me by Dr. Cullen, then according to the testimony of naturalists as to the breeding of immature Imperials, it is not the bird it is given to represent, and as I am quite certain that Dr. Cullen was not deceived, and that injustice has been done to his Tartar, I must, for the present at least, remain sceptical as to the arrangement adopted by Mr. Dresser being anything more than provisional.

For the purposes of this work I shall content myself with laying the chief points in the controversy before my readers. I shall figure and describe what I consider to be the typical form of *Aquila imperialis*, and its egg. I shall also give figures of the Spanish variety and its egg; and of a typical *Aquila orientalis*, as equal to *A. bifasciata*, considering that Mr. Brooks has made out a good case, until it is upset. I shall also figure one of the eggs taken with *A. clanga*, and one of the eggs taken with the lineated plumaged bird figured by Mr. Dresser, the skin of which passed from my possession into the Norwich Museum. The eggs are in my own collection.

The following account of the habits of the Imperial Eagle, is from the pen of Mr. A. S. Cullen, of Kustindji:—"It is a permanent resident in the Dobrudsha, and is common in all the forest districts and many of the plains. Although, as might be expected, it usually breeds in the large forests, its nest is not unfrequently found in plains where there are many trees, and likewise in some of the inland cliffs and rocks.

It seems at all times to prefer the borders and open parts of the forest for nesting purposes, seldom breeding in the densely wooded parts, and never upon the ground, like the Spotted Eagle, which is a plentiful bird all over the country. The tree selected by the Imperial Eagle for its nest is generally a pretty high one, but not invariably, for sometimes a very low one is fixed upon; and once or twice I have even found the nest in a hawthorn bush not more than four, or at most five feet from the ground, and with a stem not more than an inch in diameter—and this when better positions could easily have been obtained.

Although the Imperial Eagle builds most commonly on trees, nests

are occasionally found in holes in cliffs and rocks. I have seen one or two such nests. As a rule, the nest is made in the body of the tree, and at the top, but I have seen two nests which were placed on projecting forked branches, though such a position is very unusual. The nest is made of large and small branches and sticks, and is lined with pieces of wool and rag, or tufts of dry grass—in fact, with anything soft that the bird can lay hold of. It is about four or five feet broad, but very shallow, being little more than sufficiently deep to keep the eggs from rolling out, but is a tolerably compact structure. The birds, if undisturbed, return yearly to the same nest, and generally make some addition to it, so that in time an enormous mass of material is accumulated. This bird lays early in April. The eggs vary from two to three in number, but, though the latter is not rare, two is the rule. When the bird has been sitting some time it becomes quite tame, and will allow its nest to be approached without showing any signs of fear. I once walked straight up to a tree in which there was a nest, and the bird plainly visible sitting thereon; I stood for some time under the tree talking to a Tartar I had with me, but it sat still, and did not appear in the least disconcerted; and it did not think proper to move till we had thrown up several stones, and then it merely stood upon the edge of the nest, and we had to shout and wave our hands before it would fly away. It is by no means unusual to find jackdaws and other small birds, such as sparrows, nesting in the same tree as this bird. On one occasion I came upon a whole colony of jackdaws breeding in the same tree as an Imperial Eagle. One of the favourite breeding spots in the Dobrudsha of the Imperial Eagle is the valley which winds up country from the head of Lake S—. This valley, which is about fifteen miles long, and somewhat more than a quarter of a mile broad at its widest part, is flanked on the south for the first half of its length by high cliffs and hills, the line of which is broken by lofty quarries and deep ravines cutting it here and there. Down this valley flows a small muddy stream, along the course of which, and opposite or near every village where the nature of the ground has permitted a sufficient fall, there is erected a wretched water-mill, close to which as a rule a few willow trees grow; and in nearly every clump a nest and eggs of the Imperial Eagle may be found during the breeding season, provided always they have not been robbed by the Tartars—a not unfrequent occurrence.

I first visited this valley in May, 1864, and took only one egg; but I saw several injured nests which had been robbed just before. When I went again in 1867 all the nests were in good repair, and all contained eggs. I took in this trip a pair of eggs from a tree close to

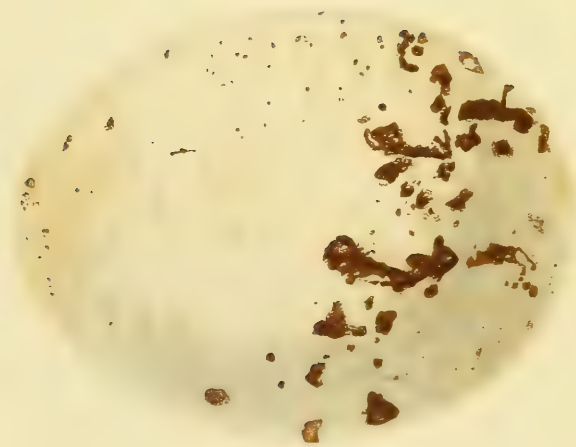
one of the mills, and in 1868 I took two more from the same nest. I kept an Imperial Eagle in confinement for upwards of four years. He was only two weeks old when taken from the nest; but from the very first he was fierce and unmanageable, and seemed to get worse as he grew older. He would eat almost anything, but greatly preferred birds, hares, and rats to all other kinds of food. When kept without his dinner for a day he became quite voracious, and made nothing of swallowing a good-sized rat whole. If when he was hungry a fowl, duck, or turkey strayed into the yard where he was caged, he would wait until it came within reach, and then seize it by the head, and drag it through the bars and eat it. If it so happened that the unfortunate victim was too large to be dragged through the bars of the cage, he would hold it fast till it was dead or rescued. After he caught a fowl or other bird in the manner just detailed, he would set up a series of triumphant screams.

I once had a pet jackdaw. Jack was a most audacious bird, and, though he had been once or twice saved from the Eagle's claws, he would not learn caution. One day Jack was missing, and hearing the Eagle scream, I rushed out to his cage; but, alas! poor Jack had been caught, and I was only just in time to witness his dying struggles. The rats at one time made a hole in the Eagle's cage, and were continually carrying off his food, much to his disgust. He made up his mind, however, to inflict condign punishment on the offenders; and when I was one day watching his movements from a concealed spot I saw a large rat run out of his hole, and commence his attack upon the food. The Eagle remained perfectly still, but with his eyes fixed upon the rat—a proceeding which the latter did not altogether trust, as at one time he seemed scared, and ran off to his hole. He soon, however, returned, and the Eagle prepared to spring. The movement frightened the rat, which tried to bolt; but with amazing quickness the Eagle came down, and seized the rat in his claws. In less than a minute he had swallowed him entire."

Mr. Cullen, it will be observed, remarks that the Spotted Eagle (*A. nœvia*) always and without exception lays its eggs in the Dobrudsha on or near the ground. Mr. Farman found one nest, as related in the paper above quoted, in an ash tree in Bulgaria.

Degland remarks that in the steppes of Russia the Spotted Eagle (*A. nœvia*) nests on the ground, though, with Yarrell and others, he gives the general nesting place on trees, "très-élevés."

It is quite possible that these different accounts may refer to the two races known as *A. nœvia* and *A. clanga*, the latter being a larger "Spotted Eagle" than the former.



IMPERIAL EAGLE.

I have in my collection a dozen eggs of the Imperial Eagle, which I obtained through Mr. Farman and Dr. Cullen. Mr. Cullen has also sent me five fine specimens, so that I have no difficulty in giving a faithful description. I have also eggs from South Russia. They do not vary much in size. They are within a very short distance indeed of two inches and nine-tenths long, and two inches broad. I have one specimen also from Kustindji, which is one tenth of an inch shorter each way than the above.

The coloration varies from pure unspotted white to clear white with faint brown markings—then to similar eggs with more numerous but still indistinct pinkish brown blotches, some of them of largish size, and altogether covering the greater part of the egg. Then we have a similar series of blotches and markings upon a dirty white ground, and I have said all that is necessary about the eggs of the Imperial Eagle. It is eminently characteristic of the species—never, according to my experience, being marked with the bright russet blotches which we sometimes see on the egg of the Golden Eagle. Its size, and the apparent preponderance of white, owing to the light and indistinct colour of the blotches, at once distinguish it from the egg of the Spotted Eagle, *A. nœvia*.

The Imperial Eagle, the subject of this notice, is one of the most beautiful birds of its tribe. It was long confounded with the Golden Eagle of British lists, but it is readily distinguished by the specific characters, given above. It inhabits the extensive mountain forests in the middle, south, and east of Europe. It is found in Turkey, Hungary, Dalmatia, and the south of Russia. It occurs accidentally in the Pyrenees, and in the south of France. M. Crespon records its appearance in the departments of Gard and the Rhone; and M. Tyzenhaus says it is found rarely in Lithuania, where it has been known in one instance to breed. It has a wide range, being found commonly in Egypt and Barbary, India, and it also occurs in China: a specimen from Foo-choo is now alive in the Gardens of the Zoological Society in Regent's Park, but has not yet acquired its adult dress.

The adult male and female have the plumage generally of a rich glossy blackish brown, the feathers on the wing coverts and scapularies edged with lighter brown. Head and nape creamy yellow; more or less streaked longitudinally, with dark brown. Scapulars dark brown, with a more or less scattered patch of white between the shoulders. Tail dark grey, marked with brown, and a broad terminal blackish brown band, narrowly tipped with whitish brown. Beak blue; cere and legs yellow. Iris varying from pale hazel to straw yellow.

My figure of this bird is from a fine Indian specimen, in the col-

lection of Dr. Crowfoot, of Beccles, who has kindly lent it to me. I have a very fine skin from the Dobrudsha, but it is unfortunately too much injured to copy. I endeavoured to get a fine European specimen, but unfortunately Baron Von Hügel had presented it to the British Museum, and my application to that *public* institution for the loan of the skin was not conceded. The upper egg in the plate is typical, and was sent me by Dr. Cullen. The lower one is a beautiful variety from the collection of Mr. Farman, and was also taken in the Dobrudsha.

Since the above was written, Dr. Cullen writes me word that his Tartar has captured two more Striated Eagles,—one of them sitting upon two eggs, which were laid in a nest upon a ledge of rock. Dr. Cullen describes these eggs as similar to those before sent, one of which is figured. His statement of size, however, entirely places *Aquila nævioides* out of the question. I shall have an opportunity in the preface of giving the result of the examination of these skins and eggs. *Aquila nævioides* has no claim to European rank, and will be left out in the present edition.





ADULTERUS IURATUS

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus AQUILA. (*Brisson.*)

ADALBERT'S IMPERIAL EAGLE.

*Aquila Adalberti.**Aquila Adalberti,*
“ *Imperialis,*BREHM. DRESSER.
OF AUTHORS.*Specific Characters.*—White feathers on the shoulders and edges of wing.

IN all respects save those mentioned in the above specific characters the adult bird of the present notice is exactly like that which I described last.

In the young stage, however, it differs materially from the assumed young stage of *Aquila Imperialis*, and upon these grounds chiefly Mr. Dresser has assigned the present bird's specific rank. These characters I have dealt with in the preliminary remarks which headed the notice of the last bird. I do not think the question is decided, for it appears to me that there is much confusion among naturalists as to what the young stage of *A. Imperialis* actually is. Mr. Hume says the second year's plumage of *A. Imperialis* is *striated*, but then he says it is exactly like the bird known as *Aquila bifasciata*, Hodgson, while Mr. Brooks says that *A. bifasciata* is an Eagle on its own account, and this is no other than the bird known in Europe as *Aquila clanga*, Pallas—*A. orientalis*, Cabanis. If a careful ornithologist like Mr. Hume, who is, moreover, one of the most zealous and hard-working naturalists of modern days, could with his hundreds of skins have been mistaken so egregiously as to note down page after page the plumage of a distinct species for the second year's plumage of another bird, then I ask why may not those naturalists be mistaken in affixing a striated plumage bird (the very same in fact which was mistaken by Hume for the plumage stage of the same bird,) as the second year's

specific plumage of *Aquila Imperialis*, or *heliaca*, as they propose to call it? Dr. Cullen's Tartar kills an Eagle on its nest, and the bird and eggs are sent to me. Mr. Dresser says the bird did not lay the eggs sent, and that the bird is a second year's young *heliaca*! If we send the tale farther eastward, Mr. Hume would say the bird was *A. bifasciata*!! and then Mr. Brooks would say, yes, but *A. bifasciata* is *A. clanga*, and therefore logically the bird taken by Dr. Cullen's Tartar was not the young of *heliaca*, but *A. clanga*, and the eggs sent with the bird, and which I figure, would back up Brooks's opinion!

Having shown proof of the above to Mr. Gurney, he kindly wrote to me,—“There is, I believe, no doubt that some of the Eagles which have acquired the ordinary adult plumage of *A. heliaca* in the Zoological Gardens, Regent's Park, were in striated plumage when first placed in the collection; the young plumage of *A. bifasciata* is not striated, less so in fact than even that of *A. Adalberti*.”

It is worthy of remark that at the meeting of German naturalists, when Brehm exhibited his “*Aquila Adalberti*” as a new species, Professor Blasius at once pronounced it to be “*Aquila nævioides*,” under which name it has hitherto been placed by ornithologists, until it is brought before the world to do duty until further notice as an independent Eagle, which is neither “Imperial” nor “*nævioides*!”

In this unsettled state of things I shall not enter into controversy, but shall content myself with figuring the old and young of the Spanish form of *Imperialis*.

The adult bird, a fine male, is from a skin kindly sent me by Lord Lilford, and the young birds are from two living specimens which his Lordship brought from Spain in 1872, from the nest, and kindly presented to me. Since then they have been under the kind protection of Lieutenant-Colonel Hawkins, of Alresford Hall, near Colchester, where they feasted on the best of rabbits. They are now in the possession of J. H. Gurney, Esq., at Northrepps, who writes, May 25th., 1874, “The two Spanish Eagles are looking very well; they are getting dark on the crown of the head; also on the quill feathers of the wing, and in the centre of the feathers of the great wing coverts.” Mr. Gurney in the same letter says that he sees no reason why *Aquila heliaca* should not breed in immature plumage, considering how long they are about it. A female *Aquila nævioides* in the Norwich Museum, which was shot off her nest containing eggs, “which has certainly not attained fully adult plumage.”

The following is a description of the old bird figured:—Length thirty-two inches and eight tenths; tail twelve inches; wings twenty-



IMPERIAL EAGLE



ADALBERT'S IMPERIAL EAGLE.

three inches and six tenths; tarsus four inches and two tenths; middle toe two inches and three tenths; claws one inch and five tenths; upper mandible three inches; depth of beak at base one inch and two tenths. Plumage.—Top of the head dark brown; nape and sides of head and back of neck have the feathers lanceolate, and of a yellowish cream-colour, the shafts black, and mottled less above than below with brown; scapularies, back, wings, upper tail coverts, end of tail, throat, anterior neck, and all the lower parts a rich deep chocolate brown, darker on the lesser wing coverts and the primaries, almost quite black. On the back and greater wing coverts the brown is of two shades, mingled on the rump and upper tail coverts with white. The shoulders and edge of the wing from the junction with the back to the carpal joint white, mixed with single feathers of chocolate brown, giving the white marks a banded appearance. On the shoulders the white is very pure, but at the carpal joint it begins to assume the yellowish cream-colour of the back of the neck. Tail, upper two thirds grey, with bands, more or less irregular and deep in colour, of brown, lower third dark chocolate brown, with a light fringe to the tips; under tail coverts, brown; wing lining—above dark brown with a few white feathers, below lighter hair brown. The shafts of the primaries beneath are beautifully crossed with black and white.

Adalbert's Imperial Eagle is entirely confined to Spain. Its habits and nidification are precisely the same as those of its congener.

The egg is from a very beautiful specimen brought from Spain by my friend Mr. Savile G. Reid.

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus AQUILA. (*Brisson.*)

CASPIAN BIFASCIATED EAGLE.

*Aquila orientalis.**Aquila orientalis,*“ *bifasciata,*“ *clanga,*

CABANIS.

BROOKS.

AUCT. NEC PALLAS.

Specific Characters, furnished by Mr. Gurney.—*Adult*, back and scapulars dark brown, tinged with purplish on the lower portion of the scapulars; under parts, head and neck pale brown, except the crown of the head, which is dark brown; nape of neck more or less tinged with pale rufous; wings coloured as the scapulars, but paler about the shoulders; tertiaries barred with white on the inner webs, and on the outer web in some cases with white, and others with grey; tail dark grey with irregular transverse bars of a still darker grey.

Immature bird.—Paler than the adult, and more uniform in colouring, with the exception of large spots of white or pale rufous at the tips of all the quill feathers except the primaries, which have only very small pale spots at the tips, and excepting also the tail feathers, which are broadly tipped with a similar pale tint.

MEASUREMENT BY MR. DRESSER, IN INCHES.

	Culm.	Wing.	Tail.	Tarsus.
Adult male	2.45	21.0	10.5	4.1
Adult female	2.8	22.5	12.1	4.1

SINCE the days of Pallas a large supposed Spotted Eagle has been known to naturalists under the specific name of *Aquila clanga*. About a year ago, however, Mr. Gurney, upon looking closely into the question, came to the conclusion that the bird indicated by Pallas was only a specimen of the “Spotted Eagle,” (*Aquila nævia*,) and proposed that the bird known as *Clanga* should be received as in fact a new species of Eagle under the name of *Aquila orientalis*, which



CASPIAN BIVASCIATED EAGLE.

had been given to it in the "Journal für Ornithologie," by its distinguished editor Cabanis. No sooner, however, did the newly-named bird become known under its last name, than its career was checked, and the indefatigable Indian naturalist Mr. Brooks proclaimed that *A. orientalis* was no other than the bird known in India as *A. bifasciata*.

As I had something to do with this startling discovery, I will insert here part of the paper in which Mr. Brooks states his views.

"I have long had in my possession two specimens of *Aquila orientalis*, Cab., one sent me by Dr. Bree and labelled by Mr. Gurney, and the other from Mr. Dresser. The latter is a *Sarepta* specimen from the Volga region, and the former from the Dobrudsha.

"On returning the Dobrudsha example, which Dr. Bree had submitted to Mr. Gurney, the latter sent the following memorandum:—

"The Eagle which I have ticketed '*Aquila orientalis*, Cab.' is identical with that so often sent in collections from *Sarepta* near the mouth of the Volga, and is in fact the only species of Eagle which I have seen from that locality. I have hitherto been in the habit of calling this Eagle '*Aquila clanga* of Pallas,' but as Pallas does not appear, by the description of his *Aquila clanga* in the Zoog. Ross. As., vol. i., p. 351, to distinguish between this Eagle and the Smaller Spotted Eagle, (*A. nœvia*,) and as his measurements, which are given in old French feet, inches, and lines, (for a scale of which see Finsch and Hartlaub's *Vögel Ostaf.*) agree better with *A. nœvia* than with the present species, it will perhaps be best to adopt for the present species the name of *A. orientalis*, proposed by Cabanis in the "Journal für Orn." 1854, p. 369, (note,) which, though not very well chosen, is the next in order of priority, and the earliest that can with certainty be applied to this Eagle exclusively. The specimen now sent appears by its measurements to be a female, and is in adult plumage; the immature birds of this species being spotted in precisely the same manner as those of *Aquila nœvia*, which is well shewn in Yarrell's figure of the Spotted Eagle.' (Mr. Gurney writes we word,—"In this I was in error—the Spotted Eagles from the Caspian are the young birds of the Indian Eagle, for which Hodgson proposed the specific name of '*vittata*.'")

"I quote this memorandum by Mr. Gurney to shew upon what good authority one of my specimens is named *Aquila orientalis*, and the other, sent me by Mr. Dresser, labelled *A. clanga*, *Sarepta*, closely resembles it.

"Mr. Gurney's statement, that the immature *clanga* is spotted like *A. nœvia*, is, as far as I can see at present, a mistake; for we have the bird in India (*A. bifasciata*), and it never in any way resembles *A. nœvia*.

"I have, from the first, been struck by the great similarity of these two specimens to our Indian *Aquila bifasciata*, Gray and Hardwick; but had not till the other day obtained Indian specimens according in every respect, to a feather, with the European examples of *Aquila orientalis*, above referred to. Now I have, and the accordance is so beautifully perfect, that there is no alternative, but to come to the conclusion that *A. orientalis* is indetical in every respect with *A. bifasciata*.*

"I have now, therefore, three European killed examples of *A. bifasciata*; the third being that sent me by Capt. Elwes, and referred to in 'Stray Feathers,' vol. i., p. 291. The two first are in nearly mature plumage, and the third is quite mature, and is the finest specimen of the bird I have seen.

"The two sent as '*A. orientalis*' have only slight indications of the nuchal patch; otherwise I should have recognized them at the first glance as *A. bifasciata*, as was the case with Capt. Elwes's Bosphorus bird. This term has, I believe, priority over *A. orientalis* of Cabanis, and if so will be retained for this Eagle.

"One of my ornithological friends informs me that the immature of *A. orientalis* (which we have shewn is *A. bifasciata*), has spotted plumage like that of *A. nævia*; another friend informs me he has received the immature bird, and it 'is strangely like *A. bifasciata*!' Now the latter Eagle is *not spotted*, and the 'doctors,' who are both men of repute, 'differ.'

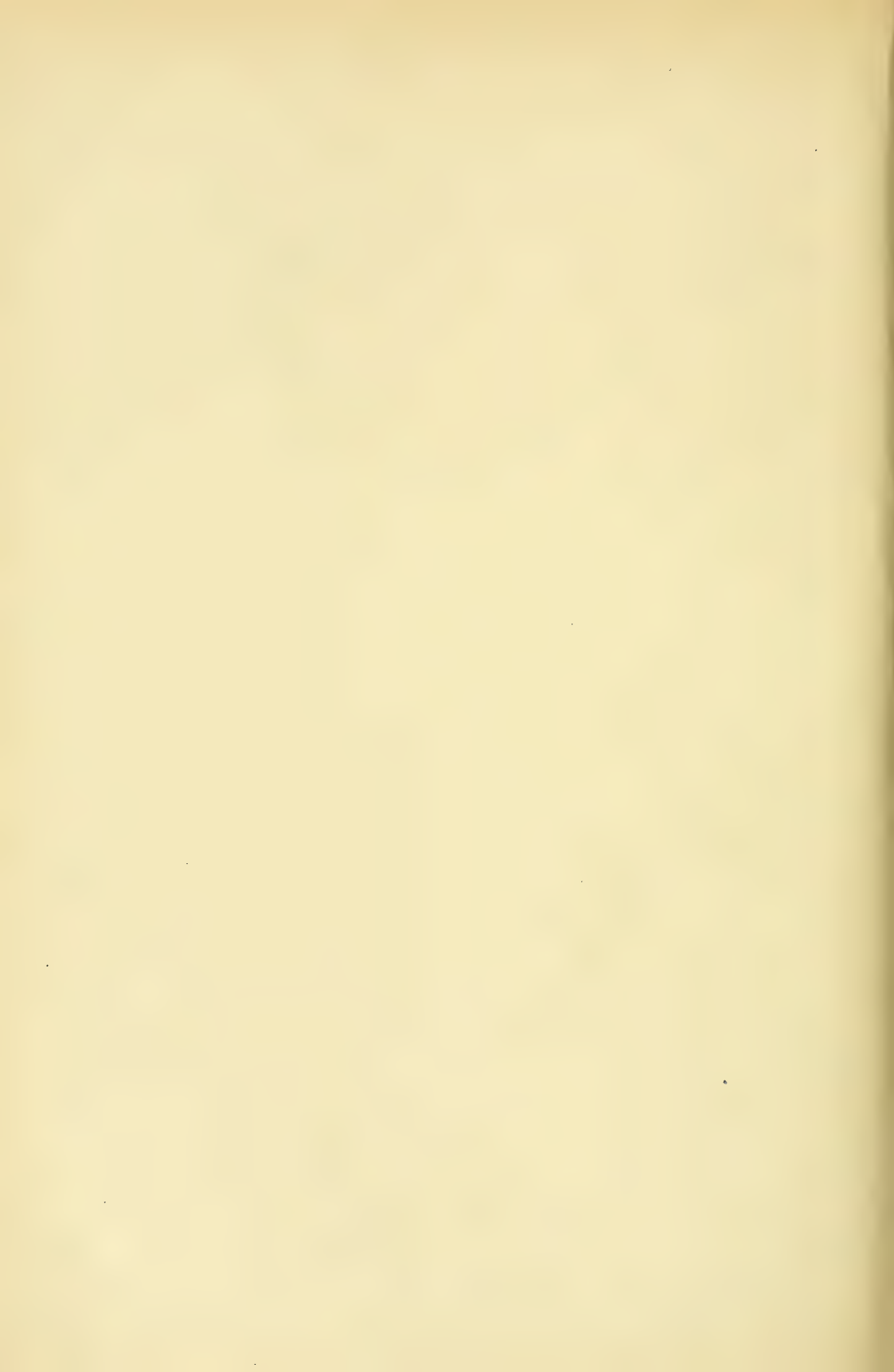
"These points will all be cleared up it is to be hoped before long; and we shall perhaps have the natural history of the Eagle, as clear and as correct as that of the common Rook, with little or nothing else to be learned. At present the Eagles appear to be in a state of dire confusion.—Since the foregoing was written, Capt. G. F. L. Marshall, who is much interested in this subject, came and examined the series used. He fully concurred in the identification of *A. orientalis* with *A. bifasciata*."

A. bifasciata, which it thus appears, has been doing duty in Europe for no one knows how long under assumed colours, has a range extending from Eastern Europe to Eastern India. Hitherto treated as a large Spotted Eagle, yet there appears to be no history of a

* [Mr. V. Ball and I had the pleasure of comparing the two specimens of *A. orientalis*, referred to by Mr. Brooks, with a series of Indian *A. bifasciata*. They undoubtedly appear to be perfectly identical, both in structure and coloration. If the determination of those two specimens as *A. orientalis* is correct, (and upon such good authority as Mr. Gurney it ought to be), there can be no doubt that the two species must be considered as identical.—*F. Stoliczka*.]



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spotted youth. If there were, it would render it necessary for Mr. Brooks to find out a similar character in his *bifasciata*. It is singular, however, that a spotted young *clanga* should never yet have been authoritatively established, and Mr. Dresser states positively it has not. (P.Z.S., 1873.) Mr. Gurney and Mr. Dresser think, however, that further time ought to be given before the matter is considered finally settled. Mr. Dresser, in an able paper in the P.Z.S. for June, 1873, argues the question fully, and seems to have little or no doubt about the identity of the two birds. Mr. Gurney is not quite so sure—he thinks them closely allied, but still distinct. I have therefore used the term *orientalis* provisionally only. Should Mr. Brooks be supported by further testimony, then *A. bifasciata* would have priority.

Under any circumstances *A. clanga* having emerged from its position as a Spotted Eagle, it would have been my duty to have introduced it into this work. I shall therefore give a figure of an adult *Aquila orientalis* from the Norwich Museum, selected by Mr. Gurney, and kindly drawn for me by Mr. Reeve.

In "Stray Feathers," for February, 1873, Mr. Brooks remarks, "*Aquila bifasciata* is often quite as robust as *A. mogilnik*, but it is never black brown, and never obtains white scapularies. The general tone of colour is earth brown, or 'soil brown,' according to Mr. Hodgson. His drawing 934 perfectly represents the adult stage." It is distinguished from *A. naevioides* by the barring on the tail and the shape of the nostril. In the Spotted Eagle the nostril "is the most circular of any Eagles with which I am acquainted," (Brooks) while in *bifasciata* it is long and vertical. "The fact of this bird's occurrence in Europe is very interesting, and I have sent Mr. Gurney a very fine series from youth to age for the Norwich Museum. From all I can learn this Eagle is common in Eastern Europe."

This remark alludes to the dark birds which migrate on the Bosphorus, as recorded by Mr. Allen, and which Mr. Gurney and Mr. Dresser now admit are *Aquila orientalis*.

In looking over the nomenclature of *A. clanga*, it is curious to observe that it has at various times been named "*mogilnik*," Gmelin, "*naevia*," Naumann, "*bifasciata*," Brehm, "*naevioides*," Schlegel, and lastly "*orientalis*," Cabanis.

I must refer especially to the specific characters furnished me by Mr. Gurney, to show the extreme difficulty in determining these species in their varied plumage, lasting, as it does, four moults. I may mention that a fine bird trapped in its nest in the Dobrudsha was marked *orientalis* by Mr. Gurney, but on comparing it with a large series of Volga skins with Mr. Dresser, those gentlemen decided

that the bird was an immature *Aquila heliaca*.

The Caspian Bifasciated Eagle makes its nest in the Dobrudsha on the ground, generally at the foot of some large rock, and lays two, sometimes three, eggs. I have in my private collection a series of the eggs of this bird. Of these I must now take out three, since the parent bird has been declared by Mr. Gurney and Mr. Dresser to be an immature *A. heliaca*. These eggs measure—

1. Two inches and three fourths by one inch and seven tenths.
2. Two inches and a half by one inch and seven tenths.
3. Two inches and a half by one inch and eight tenths.

They are, one quite white, and the other two blotched with rufous and reddish purple.

Of the true *Aquila orientalis* I have

1st.—Two from the nest on which the bird was trapped that I sent to Mr. Brooks in India, and which he identified as *Aquila bifasciata*. They are alike in size, and measure two inches and six tenths by one inch and nine tenths. They are more thickly blotched with rufous and indistinct (washed out) purple. As will be seen by the one I figure, they only differ from the other Imperials in being smaller, and the blotches more numerous.

2nd.—Six eggs taken in Southern Russia by Herr Glitzch, and sent to me by Von Heuglin. They measure respectively two inches and seven tenths by one inch and nine tenths, two inches and six tenths by two inches, two inches and seven tenths by two inches, two inches and eight tenths by two inches and one tenth, two inches and eight tenths by one inch and nine tenths, and two inches and eight tenths by one inch and nine tenths. Of these, five are more or less blotched with rufous and indistinct purple. In one the thicker end is almost covered with dark purple, and one is quite white with the exception of here and there a small purple spot.

The second egg figured under the sign of (?) is one of the two eggs taken from the nest of the Striated Eagle, figured by Mr. Dresser as *Aquila mogilnik*, (Juv.) Birds of Europe, part 19, pl. 152.

My figure of this bird is taken from a specimen taken as a typical one from the Norwich Museum by Mr. Gurney, and drawn for me—for which I express my best thanks—by Mr. Reeve.



RAPACES—DIURNÆ.

FALCONIDÆ.

Genus AQUILA. (*Brisson.*)

BONELLI'S EAGLE.

Aquila bonellii.

<i>Aquila bonellii</i> ,	SCHLEGEL. BONAPARTE. GRAY.
“ <i>fasciata</i> ,	VIEILLOT. DEGLAND.
<i>Falco bonellii</i> ,	TEMMINCK. MARMORA. BREE, 1st. Ed.
“ “	CH. BONAPARTE.
“ “	KEYSERLING AND BLASIUS.
“ “	SCHINZ. GOULD.
<i>L' aigle a queue barrée</i> ,	OF THE FRENCH.

Specific Characters.—Beak small; claws powerful; tail square, covered by the wings within two inches of its end. Legs long, entirely covered with feathers.

Measurement.—Length of adult male two feet. Length of adult female two feet six inches.—TEMMINCK.

BONELLI'S EAGLE inhabits principally the south of Europe, being found commonly in Greece and Spain. It also occurs in Italy, Sardinia, and the south of France; in all of which countries it breeds, and is a permanent inhabitant. It is occasionally seen, according to Heuglin, in autumn, winter, and spring, on the borders of the lakes in Lower Egypt, in Fajum, and thence along the Nile and into Arabia, according to Keyserling and Blasius. Antinori says it is common in Egypt and Lower Nubia; he killed a young male at Sennar in September. Brehm's *Aquila Wiedii* of Arabia Petræa, obtained in December, 1852, at Tor, certainly belongs to this species. Hume gives a good account of its several plumages in India, and records with great gusto the realization of all his previous predictions that the egg figured in my “Birds of Europe,” from the De Mur's collection, was not that of *A. Bonelli*. In Europe, however, and Bulgaria, coloured

eggs similar to my figure have been recorded. But De Murs may have been deceived, and I have now great pleasure in figuring an egg taken from the nest. It occurs in Algeria, South Africa, and Bengal as far as Nepaul.

According to M. Crespon, who seems to have frequently observed it in his excursions, it remains in the mountains during summer, and in winter descends to the marshes to hunt aquatic birds. When disturbed, it rises at once to a great height, and is quickly out of sight. Its cry is something like that of the Golden Eagle, but more feeble. An individual kept in confinement was very fierce and not easily tamed.

Its food consists of aquatic birds, hares, rabbits, etc. It nests on the crevices of rocks, laying two eggs, which are of a reddish brown, more or less pale, with the marbling and dots darker.

I copy the following from the notes of my friend Mr. Savile Reid, R.E., now stationed at Gibraltar, where this bird breeds:—

“A pair of Bonelli's Eagles breed regularly on the eastern side of the rock of Gibraltar. This year (1871) the nest was in the perpendicular face of a cliff not far to the south of the upper signal station. The two eggs were hatched about the 15th. of March, and the young birds flew about the 20th.”

“These birds made their nest this year (1872) rather more to the south (one hundred yards or so) than last year, but about the same level in the cliff in another time-honoured niche of theirs. The first egg was laid on the 5th. of February (it was the 6th. last year), and the two eggs were hatched on the 16th. of March, incubation lasting forty days. The eggs are white without spots. I saw an egg in the collection of Olcese, of Tangiers; it was of dirty white, rough, but with a slight polish.”

“1873, March 3rd.—I observed two pair of these birds hunting over the top of the rock on the 3rd. of March. I had not known of the existence of more than one pair which bred annually below the Signal Station. The four birds passed pretty close to me, and I could not have been mistaken. I thought there must be a second nest somewhere, either at the north or south end of the rock, but it was not so, the extra couple were only visitors. According to the Signal Master of the Upper Station, an accurate observer, the male and female relieve one another (when sitting) every two hours or so. No food is ever brought by the bird off duty to the one on the nest. They hunt rabbits most assiduously, stooping down upon them from a considerable height, carrying them up into the air, and flying about with them for some little time before proceeding to eat them. Occasionally they catch

a rat, and he may prove a 'tartar,' for the bird struggles and flaps its wings as though in distress. By letting the rat fall to the ground, however, and then swooping after him, the combat is soon decided in favour of the Eagle. They occasionally let rabbits fall in the same way."

"On the 8th. of March, Denison, myself, and a friend rode out to look at a wild place in the crags near the pine-wood where I had seen Griffon Vultures apparently breeding in March, 1871, and where we hoped to see them again. We saw no Vultures, but found one nest that might have belonged to them. It was in a hole near the top of a low cliff, built of sticks and rags, but contained no trace of eggs or young. As we had not much time we were just coming away, when to our delight, on cracking my whip, a large bird was seen coming out of a hole in another cliff. We soon got to the nest, which contained two eggs. We afterwards got a good view of the birds, which were *A. Bonellii*. Here was a prize indeed! I need not say the eggs were soon blown, and transferred to our handkerchiefs for transmission home. I chose the richer-coloured egg of the two—a splendid specimen; length two inches and twenty-three thirty-seconds, breadth two inches and seven thirty-seconds, nearly elliptical, the reddish brown markings rather thick at one end, and sparingly distributed over the other." (This egg is the one which I have figured.—C. R. B.)

"The nest was built on a ledge of rock close to the top of a cliff some fifty feet above the ground-level, very neatly made of small twigs lined with dry rushes and grasses. It was overshadowed by a stunted wild olive tree, and so well was it concealed, and so well did it harmonize with the live twigs and vegetation in the vicinity, that we should never have found it had we not seen the old bird fly out. Poor Bonelli! that was an unlucky crack of my whip for you, but quite the reverse for the Partridges and rabbits among those crags."

"The eggs were considerably incubated, but would not apparently have been hatched for another ten days or a fortnight. The interior of the shell was of a delicate emerald green, as shown when we cut out an oval bit to remove the fœtus." (This colour is common to the interior of all the Eagles' eggs.—C. R. B.)

My friend Major Irby informs me that no Bonelli's Eagle dare build its nest within five miles of another, so that each nest has a country to hunt for food of five miles radius!

We extract the following interesting remarks about this bird from Mr. Jerdon's contributions to the "Madras Journal," and his "Illustrations of Indian Ornithology:"—"The Mhorungah (its Hindustani

name) is certainly a rare bird in Southern India. I have only seen it twice—once at Beramahl, seated on the edge of a tank, in the neighbourhood of a jungly district; and again a pair seated on a lofty tree in a tope in open country in the northern part of the Deccan. Mr. Hodgson says the habits of the genus are as follows:—‘Preys on jungle fowl, partridges, and hares; watches from a lofty perch, usually pouncing on its game when near it, sometimes pursues it with energy on the wing.’ Mr. Elliot, in his “Notes,” says:—‘Is the noblest of the Indian Eagles, being seldom seen, and then generally at a great height in the air, in wild places. It preys on hares. I once saw a pair of them hunting in company, which nearly surprised a peacock, by pouncing on him on the ground.’

The large Hawk Eagle is dispersed over the whole continent of India, from the Himalayas to Cape Comorin, but cannot be said to be an abundant species, though few districts are not occasionally frequented or visited by them. It chiefly affects the more wooded and jungly districts, and especially the neighbourhood of hills and mountain ranges.

It is much on the wing, sailing at a great height, and making its appearance at certain spots in the districts it frequents always about the same hour. It may often be seen seated on the summit of a lofty tree, or on some overhanging rock. I have observed it chiefly on the Neilgherries, along the range of Western and Northern Ghauts, also, though more sparingly, in the bare Deccan and Carnatic. It preys by preference on various kinds of game,—hares, jungle fowl, spur-fowl, and partridges, and even on pea-fowl; also on ducks, herons, and other water-fowl, and according to the testimony of native Shikarees, it has been known to strike down the douk, (*Tantalus leucocephalus*.) Most native Falconers, too, have stories to relate of its having carried off a favourite Hawk. On one occasion, on the Neilgherries, I observed it stoop successively at a spur-fowl, hare, and pea-fowl, each time unsuccessfully however, owing to the thickness of the jungle. A pair were also wont to resort to a village at the hills, and carry off fowls. Great havoc was committed among several pigeon-houses on the Neilgherries by a pair of these Eagles, and indeed I have heard that one or two were completely devastated by them. The manner in which they capture pigeons was described to me by two or three eye-witnesses to be as follows:—On the pigeons taking flight one of the Eagles pounced down from a vast height on the flock, but directing its swoop rather under the pigeons than directly at them. Its mate watching the moment when alarmed by the first swoop the pigeons rise in confusion, pounces unerringly on one of them, and carries it off.





1. BONELLI'S EAGLE.

2. TAWNY EAGLE.

The other Eagle having risen again also makes another stoop, which is generally fatal. I have not yet been fortunate enough to meet with the nest of this Hawk Eagle, but it is said by native Shikarees to build on steep and inaccessible cliffs, and to breed in January and February."

Mr. Hume, in his "Scrap Book," No. 1, gives an interesting account of this bird. I have only room for a short extract or two.—

"This Eagle in the plains of India lays in the latter half of December and January; but in the Himalayas it lays, I believe, in April and May. The nest is usually placed on ledges of precipitous earthen or rocky cliffs, and in the plains I think preferentially in the immediate neighbourhood of some large river or gheel. I have repeatedly seen their nests in the high clay cliffs of the Jumna and Chumbal, in the Etawah districts, and I found a pair breeding in the ruined and cyclopean walls of the ancient Togluckabad, south of Delhi. Occasionally, however, they build on trees, and I found a nest containing a single egg in a large Peepul tree near Bhurtpore. The nest is very large, from four to six feet in diameter, and is composed of thickish and moderate-sized sticks, varying from 1.5 to 0.5 in diameter. There is no depression in the interior of the nest. In the centre of the platform a circular space of some eighteen inches in diameter is commonly smoothed over with a thin layer of green twigs; and in the centre of this again a smaller space of perhaps one foot in diameter is carefully carpeted with green leaves, those of the Neem, Peepul, Peeloo, and other trees being apparently indifferently made use of."

Usually they lay two eggs, but Mr. Hume once found three.

"All I have seen were oval, varying slightly in size and in the comparative length of the minor axis. Many are unspotted, the rest more or less faintly blotched, streaked, or spotted with pale yellowish or reddish brown. I have never seen a richly-coloured egg of this species. The ground colour is that of all Eagles of this type—a pale greyish or bluish white, often becoming during incubation much soiled and discoloured. They vary in size from 2.56 to 3 inches in length, and from 1.95 to 2.22 inches in breadth, but the average of nine eggs was 2.83 by 2.1."

Mr. Brooks, of Etawah, says, "The eggs were usually two, but in two instances only one. Two were white unmarked, but all the others sparingly blotched and spotted with bright reddish brown, and sometimes intermixed with blotches of light reddish grey; the largest measures 2.96 inches by 2.16, the smallest 2.79 by 2.04 inches. I have a pair of eggs out of one nest, one plain white, the other well marked."

There is a long series of this bird in the Norwich Museum, shewing

the great variety in its plumage, for which it is remarkable. A fine adult male, probably a typical specimen, has the ground-colour of head, nape, belly, and throat white, with brown markings on the head and nape, and narrow longitudinal streaks of reddish grey on the belly. Wings variegated with dark and light brown, the quill feathers darker.

An adult female from Spain, in the same collection, has the head, nape, throat, belly, thighs, and under tail coverts, a rich cinnamon brown, streaked on the under parts with long narrow longitudinal black bands on the shafts of each feather. The head and nape are marked with dark longitudinal stripes. Back and tail dark brown; quill feathers darker, slightly marked with white.

Three other specimens (females) have a plumage intermediate between the two, doubtless in consequence of age, as it varies much every year. According to Marmora and Temminck the beak in the adult is horn-colour; cere and feet livid yellow; iris brown.

Birds of the year have the iris brownish yellow. Birds of the third year have the iris a clear yellow, and the tail without the dark border at its extremity, and marked with nine or ten transverse bands. There are seven large scales on the last joint of the median toe in the adult, and four on that of the external and internal.





RAPACES—DIURNÆ.

FALCONIDÆ.

Genus—AQUILA. (*Brisson.*)

CULLEN'S TAWNY EAGLE.

*Aquila Culleni.**Aquila Culleni,*

NOBIS.

Specific Characters.—General plumage tawny. Primaries black brown. Tarsi clothed. Bill very strong. No bars on tail. In confinement very silent. Length of specimen supposed to be a female, in the Antwerp Zoological Gardens, thirty-one inches and one fifth (seventy-eight centimetres, Prof. Vanden-nest).

IN the year 1868 Dr. Cullen, of Kustendji, sent a tawny-looking Eagle to the Zoological Gardens of Antwerp. It was then three years old. Dr. Cullen frequently mentioned this bird to me during my correspondence with him about the Striated Eagles; and I wrote last year requesting the Director to send me a description of the bird. Not receiving any answer from this gentleman, I wrote again this year, requesting him to hand my letter to some zoologist connected with the gardens, and the result was the following obliging letter:—

“Antwerp, August 26, 1874.

“Sir,—In reply to your much honoured letter of the 5th. instant, I have to inform you that the Eagle which Dr. Cullen, of Kustendji, gave to our society about four years ago is in perfect condition, and that it is really the species *Aquila naevioides*.

“The following is its description. Length seventy-eight centimetres.

Supposed to be a female. Plumage of an isabelle-coloured fawn, the folded wings passing beyond the end of the tail. Upper and under parts very light isabelle-coloured fawn. Head, neck, breast, same colour, (but browner upon the back, on the rump, and on the lesser wing coverts.) There is a little also on the abdomen and tibial feathers. Greater wing coverts and secondary remiges of a dirty brown, edged at the tips with isabelle. Primaries of a brownish black, edged with isabelle. Tail brown of an earthy shade, *without traces* of bands or transverse spots. The end of the tail, which, like that of the wild bird, was of a russet isabelle, is worn off. Cere and feet yellow. Beak bluish in front of the cere, then of a brownish black. Base of lower mandible yellowish.

"Yours most sincerely,

"G. T. VANDEN-NEST, Professor."

Upon the receipt of this letter, I wrote again to Dr. Cullen and Professor Vanden-nest, and I publish the answers of these gentlemen.

"Kustendji, September 10, 1874.

"My dear Dr. Bree,—Yours of the 29th. I got on Monday night, but as our post went out that day, I answer it by return. It is indeed very interesting. If you could refer to one or more letters I have sent you, you would doubtless see, as, I dare say, you can remember that those referred to the Antwerp Bird as proof of my assertion and belief that it was *A. nævioides*. I am glad indeed to find I am not mistaken. Now as to your enquiries. The 'Fanny David' S.S., Captain W. Hunter, left this on the 11th. January, 1868, and took away this *A. nævioides*, and I think *A. clanga*. I had two birds half fledged brought me, and as I was attracted by their colour (a light cream, as I have before written you,) I bought them. One died, and the survivor is the one at Antwerp. The whole plumage was this delicate 'fauve isabelle' silk down, and then it grew gradually, developing itself into an almost perfect copy of your *A. nævioides*, as we all agreed when I got your work, and was able to observe it (your drawing) with its living representative. When I sent it away it was nearly three years old, and must therefore be nine years now. I of course regret that I did not record in writing its changes of plumage, but I was not aware of the interest attaching to the question. When I say that it was almost a perfect copy of your bird, I mean to say what we all felt to be the truth, that you had an excellent artist to draw your birds, and only regretted that you had not the living one to study and depict when in action and

excited. I should honestly say that it had not 'a striated abdomen and chest.' It was not the same bird as the *striata*? If I am not mistaken, I think that I put ? after *nævioides* (the striated bird—C. R. B.) at first. I did not know what to call it, and gave it that name for want of any other. I had misgivings about it, as I found all the specimens so much larger than what you stated, in addition to the striated plumage, which had *not* appeared in the Antwerp bird; but I felt slow to believe, with my small sphere of experience, that it could be a really new species. As I have said before, my motto is '*Ore trahit*,' and for the elucidation and illustration of the truth. At three years old it might have served for an illustration of your book, and no one would have supposed that two birds had sat for their (the same—C. R. B.) portraits. I think I have fully answered your enquiries, and suppose you will again honour it with a place in your second edition, as the evidence is sufficient of its right to be classed among the 'Birds of Europe.'

"Yours, in great haste,

"W. HY. CULLEN."

"Antwerp, September 28th., 1874.

"Sir,—I have the honour of sending you all necessary information respecting the Eagle *nævioides*, which was received some years ago by our society from Kustendji.

"Its size at the time of its receipt by us was much the same as at present, but the plumage was browner, (paler, however, than that of the Royal Eagle.) A reddish tint predominated on the neck and chest, and there were isolated reddish spots upon the back; the tibial feathers were of the same colour as they are now, but mixed with brown spots, the lower belly brown, but mixed with reddish spots. The change in the plumage began by the large and reddish spots becoming rather pale. The nostrils are *oblong, sinuated*. The society has possessed several *nævioides*, but never one of so large a size as this specimen. *This Eagle is very silent*. The Spotted Eagles (*A. naviæ*) we have had have been in the habit of screaming directly any one approached their aviary. We have two young *nævioides*, the female is *quite brown*, but the male begins to have the reddish feathers upon the chest and neck. I enclose a feather, coloured the same as nearly all the plumage, and a rough sketch. The beak is very strong, stronger in proportion than that of the Common Eagle.

"I am, Sir, yours faithfully,

"The Professor G. T. VANDEN-NEST."

Upon this evidence I had determined to introduce *Aquila nævioides* into this edition of my book as a European bird, all other supposed captures having proved to my mind unsatisfactory. I however submitted the whole question to Mr. Gurney, as it seemed to me there were differences almost amounting to specific between the Antwerp bird and the African, a very good representation of which was given in my first edition, and which I now reproduce for comparison. After a considerable correspondence, Mr. Gurney wrote to me as follows:—

“Northrepps, Norwich, 25th. September, 1874.

“My dear Dr. Bree,—Enclosed I return, with many thanks, Dr. Cullen’s and Professor Vanden-Nest’s letters, with the sketch and the feather.

“My reasons for thinking that the Antwerp Eagle is distinct from *Aquila nævioides*,—*rapax* of Southern and North-western Africa,—are,

“1st.—That although nine years old, it has not yet attained the rufous plumage of the head, and neck, and breast, which invariably marks the adult of the South African bird, and is represented from a South African bird in Temminck’s plate of *F. rapax* in the ‘Planches Colorées,’ and in Lord Lilford’s plate (front figure) of a Mogadore bird in the ‘Ibis.’

“2nd.—From its greater size.

“3rd.—From its silence. A South African *nævioides*, which I had alive for years, was excessively noisy.

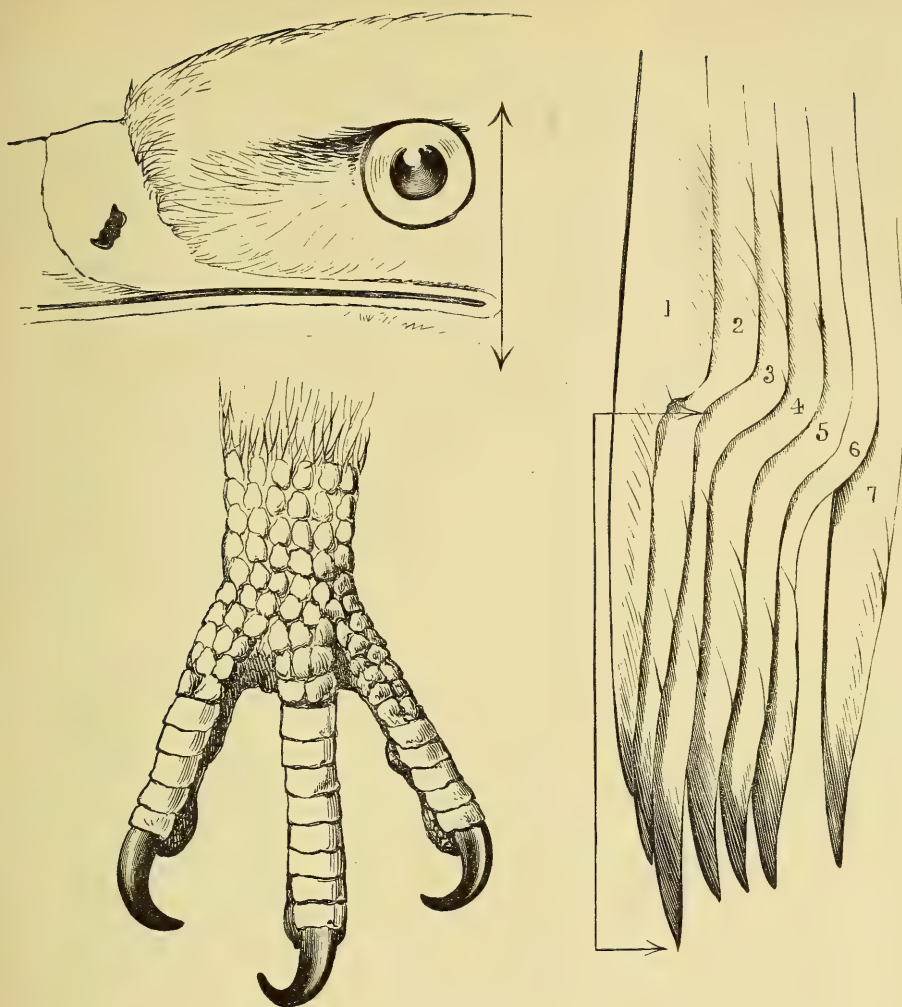
“4th.—From the absence of bars on the tail.

“5th.—The description of the bill as ‘*très forte*.’

“If it is not *A. nævioides*, what is it? I confess I do not know, and I do not think it by any means impossible that it may prove to be an undescribed species.”

I may state that Lord Lilford has always considered that the hinder figure in his beautiful plate of *Aquila nævioides*, in the “Ibis” for 1865, was the type of the adult Tawny Eagle. He has repeated this opinion to me quite recently. The bird is dead, but the dark one is still alive.

On the whole, then, as I cannot refer the Antwerp bird to any of the forms known as *rapax*, *senegalla*, or *nævioides*, I have adopted for it the name of *Culleni*, in honour of the naturalist who gives us the earliest account of the bird’s history, and who placed it in the gardens at Antwerp, who for many years past has worked assiduously at the fauna of the Dobrudsha, whom I have the privilege of ranking



The drawing of *Aquila Culleni* has been inspected and corrected by Professor Vanden-Nest, so that our figure may be taken as an *exact* portrait of the bird in the Antwerp Zoological Gardens. We also give details of wing, foot, and head, furnished by the Professor, who adds the following note to his previous remarks:—"One more word about the *Aquila Culleni*, after having collected all our remembrances. We have never had so fine an Eagle; its carriage is quite different from that of the *Aigle nævioides*, the head is more *degagée*, in short *it has a more noble air*. It is even more *degagée* than the Imperial or Royal Eagles."

In the above engravings the head shows the exact shape and situation of the nostril, and the extent of the gape beyond the eye. The wing shows the relative length of the primaries, and that the seventh is not notched like the others; the length of the longest primary, from the shoulder of the notch to the tip, is seven inches and one tenth. The foot shows the relative position and number of large and small scales.

among my friends, and am proud of the opportunity of offering so slight an honour as that of standing sponsor for my bird.

It is quite true that this name must for some time to come be considered as only provisional, and it may turn out that other forms of *A. navioides* are similar to the Antwerp bird. Le Vaillant's figure of *Aquila belisarius*, "Exploration de l'Algérie," pl. 2, Ois., which is given by Mr. Sharpe in his Catalogue as a synonym of *A. navioides*, Mr. Gurney says bears a remarkable resemblance to the sketch sent me by Professor Vanden-Nest. It is given as a synonym of *navioides* also by Loche without a word of comment. But this bird is eighteen centimetres less than the Antwerp bird.

Under any circumstances, however, *A. Culleni* must be considered closely allied to the typical *navioides* of Africa, and as probably the European representative of that bird. The following remarks, therefore, upon the Tawny Eagle with which I was some time ago favoured by Mr. Gurney may be appropriately copied here.

"The Tawny Eagle of South Africa is remarkable, when fully adult, for the parti-coloured character of its plumage, most of the feathers, excepting the quill feathers of the wings and tail, being partly tawny rufous and partly purplish chocolate colour, both hues occurring in the same feather. This peculiarity is well represented by Temminck in the 'Planches Colorées,' who figures a South African adult specimen at plate No. 455, under the name of *Falco rapax*.

"Whether the Tawny Eagle of Northern Africa assumes a similar adult plumage I am unable to say; North African specimens are very scarce in collections, and are usually much faded by the action on the feathers of the sun and air; such a specimen from Algeria is figured in the 'Exploration de l'Algérie,' aves pl. 2, under the title of '*Falco belisarius*.'

"In India two nearly allied, but in my opinion distinct species are found, one of which, *Aquila fulvescens*, Gray, seems to be a comparatively scarce bird, and to be limited to North West India, where it has recently been recognized as distinct by Messrs. Brooks and Anderson (Vide W. E. Brooks in 'Stray Feathers' for 1873, p. 463).

"The other Indian Eagle of this group appears to be common throughout the Indian peninsula, and is *Aquila Vindhiana* (Franklin). I believe that it is also found in Abyssinia, as I have seen Eagles from that country which I could not distinguish from it, though I have also seen Abyssinian Eagles which seem to be referable to the ordinary Tawny Eagle of North Africa, of which *Aquila albicans* of Rüppell appears to be a synonym.

"The habit of robbing Falcons of their prey, which is noted in

page 73 of the first volume of your work, is common to the Tawny Eagles of North and South Africa, and also to the Indian *Aquila Vindhiana*."

From Heuglin's "Ornithologie Nord Ost Afrikas" I collate the following about the Tawny Eagle (*A. nerioides*). The light coloured birds are known as *Aquila albicans* of Rüppell, mentioned by Mr. Gurney above:—

"The Tawny Eagle is spread over the greater part of Africa. It is a rare winter visitor in Egypt and the north of Nubia. It appears principally in the steppes and forests, and is especially frequent in the southern and eastern part of Sennar, in Takah, the Bogos country, and through the whole of Abyssinia to the height of twelve thousand feet. It appears also on the hot Samhara coast—for example, in the valleys of Ailat and Azuz. In the above-named localities the Tawny Eagle is a resident, but will sometimes forsake them in the autumn and winter—probably on account of diminished supplies. It will then become 'a rover,' and goes into the country far beyond 'dead boundaries,' and turns up in the vicinity of camps, cantonments, etc., and is found in deep, low-lying districts. It has a more sociable disposition than its allies, and is less daring as a robber, often contenting itself with carrion in the company of Vultures and Ravens. It is not, generally speaking, a shy bird, and feeds upon small mammalia principally. With the commencement of the summer rains the Tawny Eagle begins its nest. This is made on high trees, especially acacias and zizyphus in Abyssinia, sometimes on junipers. The nest is of considerable size, and is formed of dry twigs, and Heuglin often observed several on the same tree. It is not very particular in its choice of a building spot. It nests either in lone forests or in farm yards, and even on churches, and uses the same eyrie for several years. Even when breeding is not going on, this bird may be seen sitting or perching on its old nest. In Abyssinia Heuglin found nests made in May, June, and August, while Vierthaler met with one in January, containing a young bird in downy plumage seventeen inches and a half in length. In the nest were dead rats and a domestic cat. Old birds from Abyssinia are almost uniformly of a grey isabel colour, which latter tint gradually changes to a dull white. Other birds from Eastern Sennar and Western Abyssinia are generally, and especially underneath, of a greyish fawn colour. On the breast, sides, shanks, and under tail coverts are solitary, often very broad, reddish or smoky brown arrow-shaped spots, which sometimes run across the whole feather. The Tawny is distinguished from the Spotted Eagle by being larger, having a shorter stride (*kürzern*

Lauf), and the long oval nostrils, which in *Aquila naevia* are almost circular."

Whether *Aquila Culleni* will prove to be distinct from *Aquila naevioides* in habits as well as structure cannot be said as yet with certainty. At the same time I hope we shall be spared that small criticism which only sees realities in its own creations, and which talks about the scientific world not accepting a name which the said world ought to be too glad to be provided with, for designating what it would otherwise be unable to distinguish.

The figure of this bird is that of the specimen in the Zoological Gardens of Antwerp, sent to me with the characteristic feather of the bird by Professor Vanden-nest.

STRIATED EAGLE.

SINCE my description of *Aquila heliaca* was printed off, I have received from Dr. Cullen, of Kustendji, another pair of skins of the above bird, with two eggs taken from the nest upon which the male bird was sitting when captured. These specimens so decidedly confirm the breeding habits and the character of the eggs, as distinguished from those of *Aquila heliaca*, that I am strongly of opinion that the bird will prove distinct.

We have no *proof* that this bird ever does assume the dark plumage and white scapulars of *A. heliaca*. I am happy to say, however, that I have made arrangements with Mr. Charles Edward Cullen, who has kindly promised next year to take the young of each from the nest and bring them up. Lord Lilford has also offered to receive a pair of each into his fine collection of live birds at Lilford, and thus the question will be finally set at rest. In the meantime I figure the male and female striated bird and their eggs, which will assist us in the inquiry.

In addition to the reasons before adduced by me, which bear against the assumption that the Striated Eagle is the immature *A. heliaca*, I will now place my objections in a serial form.—

1.—If the hypothesis of such a change in the plumage of this bird were true, then we should witness the extraordinary fact of large full-grown Eagles changing in one year from a cream-colour more or less rufous into the well-known black brown plumage with white scapulars of *Aquila heliaca*.

2.—We should have an Eagle one year building in the striated plumage upon rocks close to the ground, and the next changing this locality to a high tree.

3.—We should have an Eagle laying one year an egg with red markings, and the next one third larger with the well-known washed-out purple spots of the ovum of *A. heliaca*.

4.—The immature plumage of the Spanish form of *Aquila imperialis*, hastily I think separated from *A. heliaca*, has no striated plumage, as



BALD EAGLE

will be seen by reference to the figures which I have given of two birds formerly in my possession, and now in that of Mr. J. H. Gurney; but the adult birds are so nearly alike that it requires species-making ability to separate them.

5.—There is no known instance of a Striated Eagle assuming the plumage of *A. heliaca*.

6.—There is nothing more constant in nature than the exactitude of juvenile with mature habits.

7.—Dr. Cullen, of Kustendji, says most positively that *A. heliaca* never has a striated plumage, but that the Striated Eagle is well known there as the "*Sari Kartal*," the Yellow Eagle, as distinct from "*Biaz-omz*," the White-shouldered Eagle, which does not breed in its immature plumage.

We already know the fact that Mr. Allen Hume, in his "Scrap-Book," described a well-known distinct species, which I have figured as *Aquila orientalis*, as the second young plumage of *A. heliaca*. The description I have given of the Striated Eagle tallies very well with his third stage, substituting white for cream-colour, but he gives no proof that this is the young of *A. heliaca*, and having been so completely mistaken in one case, it is very probable he is equally so in the other. The most experienced ornithologists have made the mistakes of calling *Aquila bifasciata* by Pallas's name of *A. clanga*, which means a totally different bird, and *Aquila clanga* or *A. orientalis* again has been mistaken for *A. naevioides*.

The history of ornithology affords many similar instances, and these errors ought to guard us against hasty generalization.

I copy the following from Dr. Cullen's latest letters:—"May 4th., 1874.—I have just secured another Eagle, male, with two eggs in all respects similar to the one which has been such a bone of contention in colour and markings. It was snared on the nest. The nest was placed upon a ledge of rock not more than four or five feet from the ground, in what I may call a deserted quarry. The eggs are smaller and very differently marked from any previously taken from the nests of Imperials—I mean of what I call the Imperial, viz. a bird with uniform dark chocolate coloured feathers all over the body except the white shoulder, which gives origin here to the name Biaz-omz—"white shoulder."

The bird and eggs thus alluded to are the male and egg figured in the plates. The female also figured is thus described by Dr. Cullen:—

"Kustendji, April 20th., 1874. My Tartar has just secured another Eagle, of which I send you the following description:—*Female*—Characters as nearly as possible like the birds sent over, but it seems

to me, and my Tartar agrees, an old bird. The groundwork of the feathers are lighter—more cream-coloured. The under tail coverts are still paler, as well as the legs, while those of the wings and tail are of a light brown, and do not contain a spot at all approaching the dark chocolate of the Imperial. It is certainly difficult to imagine this bird to be an immature Imperial. The third wing feather is the longest but by very little. My Tartar still maintains his opinion, and points out differences in the shape of the claws and beak. Length in the flesh thirty-four inches and a half, wing twenty-three inches, middle claw and toe three inches and three quarters. Tip of beak dark lead colour, base light horn. The bird was snared in a bustard decoy."

Dr. Cullen does not send any description of the male bird which was trapped on the nest containing the eggs, and I therefore supply the omission from the skin. Upper parts—top of head, nape, and back of neck striated with two shades of rufous brown; upper part of back brown with lighter colour along the shafts. The long scapulars and wing coverts two shades of brown. Upper tail coverts chesnut, some of the feathers being nearly white, and mingled inferiorly with brown; the two lowest feathers which project upon the tail pure light cream-colour. Primaries black brown; secondaries lighter brown, with some of the feathers bordered with cream-colour. Tail brown, the two upper feathers lighter than the others, which are more or less bordered with cream-colour, the third feathers from the sides having about eight indistinct bars of creamy white on their inner webs. Lower parts.—Neck and throat like the head and nape. Crop and abdomen rufous, each feather bordered with dark brown; lower part of abdomen, under tail coverts, thighs, and tarsi tawny cream-colour; under wing coverts rufous, with dark horn markings ending in white; wing lining slaty brown. Under tail feathers dark brown, all more or less indistinctly barred with eight transverse bands of creamy white. First primary short, and not so long as the sixth; the second, third, fourth, and fifth nearly equal, but the third and fourth longest.

Dr. Cullen says that the young of the Imperial (*A. heliaca*) are never striated. This exactly tallies with the young of the Spanish form, which, as before remarked, has probably without reason been separated specifically from *Aquila heliaca*.

How strange it would be were birds so nearly alike in adult age as *A. heliaca* and the so-called *A. Adalberti* to differ so widely in their penultimate plumage. How strange that the young of *Adalberti* should not breed in its immature plumage, while its closely allied congener should assume a striated cream-coloured dress, and lay eggs upon a rock near the ground not two thirds the size of its parents'



STRIATED EAGLE.

ova, while the latter is never known in the Dobrudsha to build anywhere but in trees, and whose eggs are as well known as those of any European bird! And yet this is what we are asked to believe!

There is a striated bird in the Zoological Gardens from China, whence it was received in 1871, with which as Mr. Howard Saunders remarks the iris of a bird not then very young. This bird has, I believe, a feather or so tending towards the black plumage. It ought now to be as black as the birds figured as *A. heliaca* or *A. Adalberti*. I wrote to the Secretary for information, but, like almost every other ornithologist I have had any communication with, he seems to fight shy of the question, and asks me to go up and look at the bird. I unfortunately could not do this in time for admission of the present notice. My friend Mr. Leith Adams has however examined the bird for me with his usual kindness and skill. He writes, "The Chinese specimen is decidedly showing dark feathers on the breast, belly, and back, and seems to me on the change. Rapacious birds take often five years to complete their adult plumage in captivity, where it may be protracted. The bird agrees very well with the Mesopotamian, Chinese, and Bulgarian birds in the neighbouring cages, several of whom are of the same light plumage. *Don't trust too much to these points in rapacious birds.*"

The range of the Striated Eagle appears to be from Turkey eastwards to China. Its habits have been detailed. Should it ultimately prove to be the immature form of *Aquila heliaca* I shall at least have done something towards eliciting the truth, by figuring and describing the bird and its eggs, while no great harm will be done by adopting a provisional English name, but, on the contrary, the elucidation of the question will have been thereby facilitated. It is unnecessary to describe the eggs, as they have been faithfully figured.

Dr. Gustavus Radde, in his "Reisen im Suden Von Ost-Siberien in den Jahren, 1855—1859," has some remarkable observations about the *Aquila imperialis*. The bird met with in the countries through which he travelled was that which we now know as *Aquila heliaca*, and of this he says: "I brought with me from the Daurian plains a young female (not yet two years old) of the Imperial Eagle. It was killed there on the Tarei-nor, April 1st., (13th.,) 1856, and bears the youthful plumage, which is much rubbed all over, a few feathers of the second order being alone fresh. On the body scarcely any traces of the moulting are now existing. After the moulting of the first youthful plumage (according to Sewerzoff's observation) the *white shoulder feathers appear in the females*, while they do not appear in the males till the second moult."

All this is so totally contrary to the records of European observers, that one begins to fancy Radde has got hold of an altogether different species, but he goes on to say, "In the specimen before me I find no appearance anywhere of these white shoulder feathers. In comparing the young of this Eagle from the Tarei-nor with some skins kindly placed at my disposal by Eversmann from Orenberg in Kasan, I find that my skin is especially in the breast of a darker brown, although in every feather the light loam-coloured shaft spot is inclining to grey, and no feather here has the freshness or the dark colour of the second plumage. Also the back has a darker shade of brown, the light shaft spots being very small, and in consequence of the great wearing away of the plumage, the lighter edges of the single feathers had vanished more or less, and here they are altogether absent. If the plumage of the bird killed on April 1st. is in spite of its dark shade already much faded, it can well be maintained that as it grew it would have become much darker, and in this point would have differed from the plumage of the young Imperial Eagle of Eastern Europe. In reference to the statements of Sewerzoff, I find them confirmed by specimens sent by Eversmann to the Academy from Orenberg in the moulting plumage. This moult takes place especially on the upper part of the body as much in front as extended backwards; and between the old rubbed light feathers of the youthful plumage, the deep dark brown almost violet glittering feathers of the second plumage, are dove-tailed from the neck over the breast. Also one of the long white shoulder feathers is already completely formed."

This description of Radde, though wanting in clearness and fullness of detail, is very different from that of those ornithologists who make the Striated Eagle of the Dobrudsha the penultimate stage of the Imperial Eagle's plumage, and very much strengthens the view I have taken of the birds being altogether distinct.

Since the above was in type, the facts about *Aquila Culleni* have come to light, and the question arises, Is the Striated Eagle the immature form of *Aquila Culleni*? Dr. Cullen's letter would seem to negative such a supposition, but Professor Vanden-nest's history of the Antwerp bird's change of plumage strengthens it. This, if it prove true, will solve all difficulties. The barred tail seems to offer a difficulty; but old birds often lose entirely their barred tails, as we have seen is the case in the Eleonora Falcon.



RAPACES—DIURNÆ.
FALCONIDÆ.
 Genus—AQUILA. (*Brisson*.)

BOOTED EAGLE.

Aquila pennata.

<i>Aquila pennata</i> ,	BREHM. LESSON.
“ “	CH. BONAPARTE.
“ “	KEYS ET BLAS.
“ “	SCHLEGEL. GOULD. GRAY.
<i>Falco pennatus</i> ,	GMELIN. LATHAM. CUVIER. BREE, 1st. ed.
“ “	TEMMINCK. SCHINZ.
“ <i>pedibus-pennatis</i> ,	BRISSON.
<i>Gestiefelter adler and Zwerгалder</i> ,	OF BREHM.
<i>L' aigle botté</i> ,	OF THE FRENCH.

Specific Characters.—Legs feathered to the toes; three scales at the extremity of the middle toe. A patch of white feathers at the insertions of the wings. Tail above entirely brown. The smallest of all the Eagles.

Measurement.—Length of adult male seventeen inches and a half. Length of adult female eighteen inches.

If size were to be taken as the basis, or even an element in classification, the *A. pennata* would be excluded from the family of Eagles. But it has the distinctive characteristics of a true Eagle, as shewn, among other marks, by the scales on the middle toe. It is smaller than any of our European Buzzards, with one of which, the Rough-legged Buzzard, (*F. lagopus*,) it has some similarity, and was even confounded with it by M. Temminck in the first edition of the “Manual.” This error was, however, corrected, and a very distinct diagnosis given in the second edition, which I have incorporated with the specific characters at the head of this notice.

This beautiful little Eagle, called "Booted," from the thickly feathered tarsi, inhabits the eastern parts of Europe and adjoining parts of Asia, from whence it migrates occasionally into France and Spain. A specimen was shot at Meudon, in March, 1826; another at Bar-sur-Seine, in October, 1838; and others in the neighbourhood of Saumur and Bagnères-de-Bigorre, St. Etienne, and Bayonne; and M. Degland, on whose authority we give the above localities, possesses a specimen which was killed in the department of the Hautes Pyrénées, on the 20th. of May, 1838. M. le Comte Von der Mühle mentions in his work on the "Birds of Greece," that he obtained many specimens in that country, and that two individuals were captured near Munich. It occurs in India.

The Booted Eagle is described as very courageous, and attacks birds larger than itself, which alone would distinguish it from any Buzzard, were any point of difference now needed. It lives chiefly upon small mammals, reptiles, and large insects. It builds in high trees in Spain, and sometimes in the Pyrenees, laying two, rarely three short eggs, of a dirty, slightly blue white, and with a few very indistinct reddish spots; the long diameter being nearly two inches, and the short one about an inch and a half. Gould's very fine figure of this bird was from a specimen sent him by Baron Feldegg, which was killed in Austria. There is a specimen in the Norwich Museum, which was shot on the nest at Bar-le-duc, in France, which must therefore be added to its European nesting localities.

The following is from Mr. Savile Reid's "Gibraltar Notes:"—"1871, April, 11th. I shot a female Booted Eagle this morning. It was one of a pair which were building on the horizontal branch of an oak tree, overhanging a "laguna" in the cork woods. The nest was large and round, built of sticks lined with small twigs of oak, quite fresh and green. It contained no eggs. The eye of this bird when removed from the skull, measured one inch in diameter and about three-quarters of an inch in depth.

1872. April 21st. Went to-day to look after the nest of *A. pennata* near the Mile. Both old birds were on the nest, and in all probability there were eggs; but we could not settle the question, as the boy at second Venti, had hurt his leg and could not climb. None of us were equal to the tree, although we all had a try. On the 28th. of April, we went with the boy and sent him up the tree. There was only one egg in the nest, which was of a dingy white, and measured two inches and one-eighth by one inch and six-eighths. It was perfectly elliptical.

1873. April 27th. Being wet weather we did not visit the Booted

Eagle's nest until this morning, when we took Jose from second Venti with us, as well as Jose the "Molugurno," with ropes, hammers, nails, etc., etc. The second Venti youth, however, scorned all our preparations and never used the rope at all, at either of the two nests. In the high nest were two eggs, and in the other, one; so we secured three, leaving a hen's egg, which is something like the Eagle's, minus rufous marking, in each nest. The eggs were much alike in colouring; dirty white with pale rufous markings; but the single egg was much rounder than the others. The lengths were two inches and six-thirties, two inches and six-thirties, two inches and three-thirties, by one inch twenty-four-thirties, one inch and twenty-five-thirties, and one inch twenty-seven-thirties. One of these nests was completely hid by ivy, so as to make it very difficult to find.

The nest alluded to as being built on the horizontal branch of a large oak tree overhanging a pond, was pulled down and thrown to the ground by one of my companions, in the beginning of the summer of 1872. Next spring the nest was back again, stick for stick, in exactly the same place. All the pellets of the Booted Eagle that ever I saw contained rabbit's fur."

The specimen above alluded to in the Norwich Museum, has the head, nape, chest, belly, and under tail feathers white, with longitudinal ferruginous markings, and darker central streaks on the feathers of the chest. On the head and nape the ground-colour is nearly lost, so as to appear dusky brown. Moustache darker, and well marked; primaries black; tail brown. The iris is said by Temminck to be dark brown; the cere and toes, by Degland, to be greenish yellow.

Young birds are described as reddish brown above, more decidedly so on the head; light red below, with the streaks of a darker tint on the shafts of the feathers.—(Degland.)

In the "Madras Journal," vol. x., page 75, Mr. Jerdon remarks:—"My attention was first called to this bird at Trinchinopoly, by Mr. Hooper, C.S., who shot a specimen in the act of pouncing on some of his pigeons. I occasionally afterwards recognised it, as I thought, among the Kites, and saw it attempt to swoop off chickens and pigeons. Its appearance in the air and mode of flight much resemble that of the Kite; but the Crows appear to distinguish it readily, and often clamorously pursue it."

The Rev. H. B. Tristram writes of this bird, in his "Catalogue of Eggs for 1857:"—"This symmetrical little bird, so like a Buzzard in repose, so unlike it on the wing, is only a summer visitant to Southern Algeria. It breeds on ledges of rocks, and seems to prefer the cliffs and open country to the forests. It lays two eggs, longer and a little

larger than a Buzzard's, and seldom so richly marked."

In his "History of the Birds in North East Africa," Heuglin observes:—"The Booted Eagle (*Aquila pennata*) inhabits during the breeding season, in somewhat large numbers, the date-tree fences of Lower and Middle Egypt, especially preferring the neighbourhood of canals. It comes very early into Lower Egypt (even as early as March) to breed, and moves northwards in September or October. It passes the winter singly in Senar and Kordofan. Its flight and note are like those of the Buzzards, yet when soaring high up in the air it can easily be distinguished by its smaller, less rounded, and less outspread tail. During the breeding season they are often seen making wide circles in the air, piping and screaming and fighting as they fly. The nest is placed on the leafy tufts of high palm trees. The egg is like that of some Buzzards, but is in general smaller." In Spain (according to Saunders) the egg is not at all like a Buzzard's, and I have a specimen taken by Loche in Algeria, which is like those described by Saunders, quite white, and which Mr. Dresser (who has taken the eggs in Spain) says is undoubtedly correct.

I wrote to Heuglin about this, but he assures me that all the eggs he saw were coloured more or less like those of the Common Buzzard, and similar to the drawing in my "B. of E." I presume and believe that the eggs and mode of nesting of the same bird differs in different countries.

The Booted Eagle lives upon small mammals, chiefly field and sand mice, water fowl, and pigeons; lizards were also found in the stomach. It is not a shy bird, and is easily shot when on its resting place for the night, to which it goes at the beginning of twilight. Heuglin saw it more rarely on solitary trees. It prefers date palms, and not generally the highest of the group. Heuglin doubts the correctness of Leith Adams's account of seeing the bird on his journey from Cairo to Wadi-Halfa in November, December, and January. He had frequently the opportunity of seeing it wandering along the Nile in March and September, and it scarcely ever, according to his experience, has appeared in Egypt in the winter. It generally takes its periodical flight to the south in flocks of three to six, and sometimes more. *A. Brehmi* of Müller is the bird in young plumage. This plumage is of a dull coffee brown, the axillary feathers partly white. Birds thus coloured are met with frequently in N.E. Africa in the autumn, but not at the breeding time. The Booted Eagle occurs in N. and S. Africa, E. Africa (Chibisa, Dickinson), S. and E. of Europe, Nepaul, and, according to Schlegel in Australia. The bird, however, here indicated is, according to Gould (see his "Birds of Australia,") larger, has no



BOOTED EAGLE.

PALLAS'S SEA EAGLE.

white mark on the shoulder, and the cere and feet are of a lead colour instead of a yellowish olive. It was discovered by Gould on the Upper Hunter, and is described by him as *Aquila morphnoides*. There is a specimen in the magnificent collection in the Norwich Museum, but it is an exceedingly rare bird in European collections. Mr. Gurney writes, "The Australian bird, (*A. morphnoides*, Gould,) though nearly allied, is *unquestionably* a distinct species, as may be seen by the specimens in the British and Norwich Museums." Heuglin describes the bare skin round the eyes of the Booted Eagle in N.E. Africa as of a pale yellow, the iris between a clear brownish yellow and ochreous; in the young birds a clear umber. With regard to Heuglin's statement, as to the birds seen by Dr. Leith Adams, I have this gentleman's authority for saying, that it is very likely he *was* mistaken, as he only saw the birds on the wing through a glass.

My figure of the egg of this bird is from one of the specimens mentioned by Mr. Savile Reid as captured at Gibraltar. It is in my own collection.

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus—HALIÆTUS. (*Savigny.*)

Generic Characters.—Beak elongated, strong, straight at the base, curving in a regular arc in advance of the cere to the tip, forming a deep hook. Nostrils large, transverse and lunate. Fourth primary the longest. Tarsi half feathered, front of naked part scutellated, and the sides and back reticulated. Toes divided through; outer one changeable. Claws strong and hooked, grooved below; hind claw largest.

PALLAS'S SEA EAGLE.

*Haliaëtus leucoryphus.**Haliaëtus leucoryphus,*

“ “

“ *macei,**Aquila leucorypha,*“ *deserticola,*“ *leucoryphos,**Falco macei,*“ *leucoryphus,**Cuncuma macei,**Haliaëtus unicolor,*“ *lanceolatus,*“ *Fulviventris,*“ *albipes et lanceolatus,*

KEYSERLING ET BLASIUS.

SCHLEGEL; Revue.

CUVIER; Reg., An.

PALLAS; Zoog. Ross. Asiat., 1,
p. 352, No. 26.

EVERSMANN.

GMELIN.

TEMMINCK; pl. col. 8, 223.

BREE; first ed.

GRAY.

GRAY.

GRAY.

VIEILLOT.

HODGSON.

Specific Characters.—Tarsi naked and greyish white; cere livid. Plumage brown; vertex spotted with white. Nine large scales on the end of middle toe.—PALLAS.

Dimensions of an adult male in the Norwich Museum.—Length twenty-five inches; length of wing twenty-one inches; length of tarsus four inches; length of middle toe and claw three inches and a half.



ADAMS'S SEA EAGLE.

Dimensions of Indian specimens.—Male thirty-two inches eight lines; carpus to tip twenty-four inches eight lines; tail from vent twelve inches five lines; tarsus three inches fifty-two lines; bill two inches. Female thirty-four inches; carpus to tip twenty-six inches; tail from vent thirteen inches; tarsus four inches two lines; bill two inches five lines. Smallest adult male twenty-nine inches long.—HUME.

It is still, we believe, an undecided question whether *Falco leucoryphus* of Pallas and *F. macei*, the great Bengal Fish Eagle, are the same species. Gray gives the former doubtfully as a synonyme of the latter, and Schlegel hesitates in expressing the opinion whether the birds observed by Pallas and Eversmann were the young of *F. macei*.

There is no doubt, however, but that *F. leucoryphus* is a European species, since in addition to those observed by the naturalist mentioned above, it has been seen and shot by Colonel Irby, in the Crimea, and recorded in the "Zoologist," for 1857, p. 5353, in the following words:—

"White-headed Eagle, (*Falco leucoryphus*.)—Common in the interior of the Crimea; not seen among the rocks by the coast. This bird bred in two instances on trees close to the Katcha River; the nests were about thirty feet from the ground, and very large, formed of sticks, lined with grass and old rags. The remains of a hare were in one nest, in which was also a young bird just hatched, which did not live long, as may be imagined. A very fine specimen was killed with a revolver, while sitting on a tree near the Alma; the bird was apparently gorged, and therefore allowed a very near approach. This Eagle is apparently different from the American White-headed Eagle, (*F. leucocephalus*,) and is not, I think, described in any English work on ornithology. Unfortunately I was not aware of this at the time, and so did not particularly notice it. It is known to the Russian naturalists under the name *Leucoryphon*. A friend of mine, a good observer of birds, saw one of those Eagles chase an Osprey, and make it drop its fish. I have heard the American Sea Eagle does the same. The head, feet, and sternum of one of these birds are in England, and will no doubt clear up the question as to whether it is a distinct species or not."

Mr. Gurney writes, "I think there is not the slightest doubt as to *H. leucoryphus* being as good a European species as any on the list. I had much conversation with Lieutenant (now Colonel) Irby, who is an excellent observer.....It is, I understand, admitted to be European beyond any doubt, by the St. Petersburg naturalists of the

present day, the only question being whether they are right or not in considering it identical with *H. macei* of India."

H. leucoryphus or *macei*, for we shall in this notice consider them identical, was first observed in Europe by that excellent naturalist Pallas, and was recorded by him in his "Zoography of Asiatic Russia," vol. i., p. 352. He remarks that it was observed rarely in the vicinity of the Caspian, and that it nested in the woods surrounding that sea. He describes the bird minutely as being rather larger than the Spotted Eagle, and in habit between the Osprey and White-tailed Eagle.

M. Eversmann again reports the occurrence of the same bird, as observed by him in his voyage to Bokhara. Schlegel gives not only Eversmann's description but his own from the same specimen, in which he describes the bird as having the "figure, beak, feet, and organization of *H. macei*."

H. leucoryphus belongs to the section of Sea Eagles forming the genus *Haliaëtus* of Savigny. Its home is the Indian continent, where it is common. Mr. McClelland, in writing in the "Proceedings of the Zoological Society," in 1839, remarks of *H. macei*, "This Eagle preys on fish, and is particularly active during a storm, when it is found soaring over the lee shore, descending on such fishes as are driven into shallow water. During fine weather it spends the principal portion of its time on some high solitary bank quite motionless." And Mr. Hodges, in the "Bengal Sporting Magazine" for 1836, observes, "This species is generally found on the banks of the larger rivers, near to where they issue into the plains, and it preys on fish;" which quite agrees with the account given by Colonel Irby, of the *Leucorhynchus* of the Crimea.

Although in his Hand-list, Gray has separated the European and Indian form of these birds, I have adhered to the plan adopted in the first edition of uniting them, since Mr. Hume, our latest and one of our ablest writers upon the subject, agrees with Schlegel that *Fulviventris* and *Macei* are identical with the European species. It is true there is a difference in size given by Schlegel, but as Mr. Hume observes, there is not much dependence to be placed upon the measurement of dry skins; with the exception of the colour of the feet and cere, Mr. Hume says my figure in the first edition was otherwise a very tolerable figure. Now this drawing was taken from an Indian specimen of *H. macei* in the Norwich Museum, but the measurements, it will be observed, as I have not altered them, are very much the same as Schlegel's.

Mr. Hume has given a long and interesting account of the habits of

this bird, which I am sorry I cannot quote more at length. "They build in large trees, which are almost invariably solitary, situated on the banks of some river or considerable Jheel.

The nest is a huge platform of sticks, some of which are often as thick as a man's arm, with a superstructure of thinner sticks and twigs, and with only a slight depression towards the interior, which is lined with fine twigs and green leaves occasionally intermingled with rushes and straw. The nest is usually placed in a broad fork near the very top of the tree, on branches that seem scarcely strong enough to support the huge mass, and is sometimes occupied by the same pair for many successive seasons. The nest is always new built by the bird itself. The work of construction is most laborious, and I watched a pair for a full month. Nothing can seem rougher or more rugged than their nest when finished, and yet out of every four sticks and branches that they brought they rejected and threw down at least three. Both birds brought materials, and side by side the pair would work away throwing down almost as many sticks as they had brought; then apparently they would quarrel over the matter and there would be a great squealing, and one would fly away and sit sulky on some cliff point near at hand; after a time the one left on the nest would go off in quest of materials. Immediately the other would drop softly on the nest and be very busy (though what it did except lift a stick and put it down in the same place, it was impossible, even with a good glass to make out) till the absent bird returned, not unfrequently with a fish instead of a stick. It is a curious fact, but I have observed it repeatedly, that if the female, which is much the largest, brought the fish to the nest, the male set to work on it at once without so much as "By your leave," while if the male brought it, the female used to eye it, sidle gradually up, and only take slow and modest mouthfuls. When however the female begins to sit, the male will bring her fish or fowl and go off for other food for himself, not attempting to share it with her: and when not on the nest, neither seems to presume to interfere with the other's captures without permission. The usual number of eggs laid by this species is three, but I have myself twice found four, and it is not at all uncommon to meet with only two eggs fully incubated or two young ones in a nest."

"Typically the eggs of this species are rather a broad oval, but a good deal of variation both in size and shape occurs. I have one or two very long and one very broad pyriform egg, but these are exceptions. The colour is greyish white, and every specimen I have seen (and some fifty have passed through my hands) has been absolutely unspotted."

The eggs vary from 2.55 to 3 inches long, and from 2.02 to 2.27 in breadth, but the average of twenty-six eggs measured was 2.77 by 2.18.*

I shall give the description by M. Schlegel, of Eversmann's specimen of *F. leucoryphus*, Pallas, and then that of the specimen labelled *H. macei* in the Norwich Museum, from which my figure was taken. M. Schlegel says, "Length twenty-four inches and a half; wings one foot ten inches; tail eleven inches; tarsus three inches and a half; middle toe, without claw, two inches. Figure, beak, feet, and organization that of *H. macei*. Beak blackish; general colour of the plumage earthy brown, paler on the inferior parts. Feathers, particularly the wing coverts, with a light border; those of the head and neck fringed with yellowish brown. Region of the ears, and a large streak, which is prolonged hence to the neck, blackish brown. Greater coverts of the wings and tail black; tail varied with white the first half of its length; tail coverts pale brown, relieved by some whitish spots. Feet yellowish; claws blackish. Tail insensibly rounded at its extremity."

An adult male, marked *H. macei*, from the Himalayas, in the Norwich Museum, has the crown of the head, nape, scapularies, upper part of back, and all the under parts except the throat, cinnamon brown, darker on the belly and thighs. Throat and forehead dirty white; wings black brown; tail white, each feather being for about two inches from the end black. Cere and legs yellowish brown.

The female is much larger, but the plumage nearly the same as the male, except that the back is darker, and the white on the throat more dirty.

An immature female is nearly unicolorous, dark cinnamon brown, with white patches on the back and wings. Tail entirely black.

My figure of this bird's egg is from a specimen taken by Mr. Brooks in India, and was kindly lent to me by Dr. Crowfoot, of Beccles.

* Mr. Hume's "My Scrap Book," Part 1., No. 2., p. 257.



SHORT-TOED EAGLE.

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus—CIRCAËTUS. (*Vieillot.*)

Generic Characters.—Bill rather short, gently curving from the base, much hooked at the tip; upper mandible rounded, compressed at the sides. Nostrils oval, oblique. Wings long. The first three primaries emarginate, third longest. Tail long, nearly square; tarsi long, plumed below the heel, and the bare parts covered with small hexagonal scales. Feet small; toes short, scutulate at base; lateral toes nearly equal; claws about same length, short, and tolerably curved.

SHORT-TOED EAGLE.

Circaëtus gallicus.

<i>Circaëtus galicus,</i>	VIEILLOT. CUVIER.
“ “	LESSON. DEGLAND.
<i>Circaëtus gallicus,</i>	BONAPARTE. SCHLEGEL. BUFFON.
“ “	GOULD.
<i>Falco brachydactylus,</i>	WOLF. TEMMINCK. BREE, 1st. ed.
“ “	SCHINZ.
“ <i>gallicus,</i>	GMELIN. LATHAM.
“ <i>leucopsis,</i>	BECHSTEIN.
<i>Aquila brachydactyla,</i>	WOLF, in Meyer and Wolf's "Tas. Deutsch. Vogel."
<i>Aigle Jean-le-Blanc,</i>	OF THE FRENCH.
<i>Schlangen bussard,</i>	OF THE GERMANS.

Specific Characters.—Toes short, nearly equal; head large, round; eyes very large; tarsi naked.

Measurement.—Length of adult male twenty-four inches.—TEMMINCK.

THE Short-toed Eagle forms the sole European representative of the genus *Circaëtus* of Vieillot. It is placed by Schlegel after the Buzzards,

but I see no reason to deviate from Temminck's arrangement, with the exception of placing it last of the Eagles, forming, as it does, a natural link between the Eagles and the Buzzards.

This bird has an extensive range over the Asiatic and European continents. In Europe it is found in the Vosges, the Hautes-Alps, the mountains of the Var, the Hautes-Pyrénées, and in Spain. It is a permanent resident of the Dauphiné and Anjou. It occurs accidentally in the north of France; rarely in Switzerland and Germany, and is included by Count Mühle in the Birds of Greece. According to Temminck it does not occur in Holland, is becoming rare in France, and equally so in Belgium and Italy, and it is not included in Machado's list of the Birds of Andalusia. It extends to India. Dr. Cullen has taken it occasionally in Bulgaria, and Canon Tristram tells us (Ibis, 1865, p. 253), that it is the most abundant of all the Eagle tribe in Palestine. It occurs, Mr. Gurney informs me, as far east as the islands of Flores and Timor.

Von Heuglin, in the "History of Birds in North-East Africa," says, "The Short-toed Eagle, commonly classed with the Eagles, is tolerably common in N.E. Africa and Arabia in spring and autumn. It winters on the White Nile and in Kordofan, as well as Abyssinia. It is not mentioned by Blandford as occurring in the latter country. It appears in Egypt towards the end of February, and remains often till April. In September and October we find it on the borders of cultivated land, and in the desert and the sandy islets of the Nile. It is also found in date plantations and in ruins. In Soudan it seems to prefer the plains from whence the woody granitic hills arise. Brehm makes another specimen in *C. orientalis*, which is, however, only *C. gallicus*—white underneath, spotted on the chin, and without the dark feathers on the throat. *C. gallicus* occurs in West and South Africa, Palestine, Nepaul, and Europe."

In the Madras Journal there is an interesting account of its habits in that country by Mr. Jerdon, which I transcribe from the valuable Catalogue of Birds in the East India Company's Museum, by Mr. Horsfield:—

"This species is very generally spread over the country. It affects chiefly the open plains and patches of cultivated ground. It may frequently be observed perched on a low tree, or even a bowrie pale, or seated on the bank of a river, where it occasionally darts on its prey, but generally takes a long and circling flight, or flies heavily along but a few yards above the ground. The most favourite food of the Samp-mar is, as its Indian name implies, snakes. It will however take other food. Colonel Sykes found a rat in the stomach of one.

I saw one strike at a wounded hare, and another make a swoop at a teal that was shot. From Mr. Elliot's 'Notes' I take the following:—'Pounces on snakes and guanas; my Meer Shikar has seen them on the ground with their claws on the snake's head, its body coiled round the bird's wings, in which state the herd-boys sometimes kill them. The Yerklees say it has a figure of the god Chukram under each wing, by which it prevents the snake going forward. In the stomach of one I found a snake about two feet long, and a centipede.'"

Of its habits in Europe the best summary with which I am acquainted is in Degland's "*Ornithologie Européenne*," which I will give in his own words:—

"Le Jean-le-Blanc lives in the borders of woods, frequenting the underwood. In its manner and carriage it is very like the Common Buzzard, and equally indolent. M. Gerbe saw one attacked by Magpies, but the Eagle remained totally unmoved. In winter, according to M. Bouteille, it lingers near the dwellings of man, on the look-out for poultry, which in this season is its principal food. In the summer and autumn it frequents marshes, and then feeds upon field-mice and lizards.

M. Tyzenhauz does not agree upon this subject with our friend, for, according to him, the Jean-le-Blanc does not hunt small animals, but grouse, partridges, hares, and barn-door fowls are its favourite prey. If sometimes reptiles have been found in its stomach, it was, according to this naturalist, in consequence of its being forced by hunger to feed upon them. Notwithstanding this assertion, it is, however, certain that it attacks small vertebrate animals, and even insects. M. Gerbe, at two different times, found their stomachs filled with the elytra of beetles." Mr. Gurney informs me that a friend of his found a snake about three feet long, which had been swallowed whole, in the crop of a Short-toed Eagle near Rome.

The Short-toed Eagle nests not only upon high trees, but according to M. Bouteille, in brushwood and coppices, in which opinion he is corroborated by M. Roux, who says that it builds "sometimes in high trees, and sometimes very near the ground." M. Tyzenhauz says that it builds only on high trees in old forests, and never on the ground.

M. Moquin-Tandon says in a private letter—"Dr. Alexander Savatier wrote to me from Beauvais-sur-Matha, (Charente-inférieure.) 'I have killed on its nest, in a forest in our neighbourhood, a female of Jean-le-Blanc. This nest was placed upon a very high tree; it was sixty or seventy centimetres in diameter; it was composed of dry twigs; it only contained one egg, half sat upon. It was May 16th. The shell was a dirty white, and rugose. Great diameter eight cents,

and little, about six cents. The peasants assured me they had seen other nests, always with only one egg, and that this was never spotted.'

Authors generally attribute two eggs to this species. He added that the bird feeds principally on reptiles; I have verified the truth of this assertion, for having opened the stomach of my bird, I found it contained a sort of ball, about the size of a partridge's egg, composed of serpent's scales."

The following is from the notes of Mr. Savile Reid, detailing the breeding habits of this bird at Gibraltar, 1872:—"When out with D. at the Monte lar Torre, on the 22nd. of May, we found two nests of this Eagle (*Circaëtus gallicus*) in two adjacent oak trees not very far from the old Moorish tower. Both nests were low down (from ten to twenty feet above the ground), and each contained a single Eaglet. In one nest the young bird was apparently about a fortnight old, and in the other about four or five days. The larder of the former contained a large snake, about two feet six inches long. The latter had apparently to dine upon birds, Turtle-Doves especially. Both nests were full of black ants feeding on the delicacies intended for the Eaglets. The old birds were very clamorous when their nests were first approached, but after a while they soared away to a vast height, and only one of them came near us while we examined the eyries. As soon, however, as we left the place they stooped down towards it."

"1873, April 29.—José el Malagueno brought me this day an egg of *Circaëtus gallicus* from a nest in the cork woods near Bocaleones, from which he had also brought me the egg in May, 1871. It was very slightly incubated. Length three inches and one sixteenth, breadth two inches and four sixteenths, rather pointed at the small end, of a rough texture, white, with one or two streaks of brownish red."

"May 12th., 1873.—Col. Irby's collector brought me in some eggs to-day, viz., one of *Circaëtus gallicus* being much incubated, and an unknown Eagle's egg. This egg puzzled me much. It was too small for *Circaëtus*, *Nævioides*, *Fulvus*, or *Imperialis*, and too large for *Pennata*. What was it then? I proceeded to blow it—when I found it hard-set I was going to say—no, not hard-set, *but hard boiled*. What a sell!—it was the hen's egg we had left in the nest of *Pennata*. I learned one important fact from this amusing incident, namely, that the rufous markings on the eggs of *A. pennata* and probably *A. nævioides* and *C. gallicus*, are deposited on the surface of the egg *after* it is laid, most likely due solely to stains from the nest or food of the old birds. The hen's egg in question had some aquiline blotches upon it, and would have taken in the most knowing oologist. I have pre-



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served it carefully as a record of a most amusing deception—a punishment, as it were, for my unfeeling substitution of the egg.”

Mr. Hume, “My Scrap Book, No. 1., Part 1,” observes about the bird in India, “The Short-toed Eagle lays in the plains of Upper India in January, February, and March. As a rule the nest is placed in trees, but on two occasions in the Etawah district we have found the species breeding on small platforms in the face of the high clay cliffs of the Jumna. The nest is a large circular stick structure, some two or three feet in diameter, and from six to twelve inches in depth, externally very loose and straggling, but composed of rather slighter materials than that of *Fulvescens*, and with a rather deeper internal depression. Some nests are entirely devoid of lining, rather finer twigs compose the floor of the internal depression, and upon these the egg reposes. Some nests have the egg bedded in straw and grass, positively as if packed for travel; under some I have found a few green leaves spread after the fashion of Bonelli’s Eagle, and under many, a little grass. I have taken a great number of the nests of this species, and many of my friends have found them also, but in no instance out of between forty and fifty recorded cases did any of us meet with more than one egg in the same nest.”

“The eggs are typically broad oval, with a slight pyriform tendency. They are of a pale bluish white colour; bluer than any other Indian Eagle, and to judge from a large series they are invariably spotless, and seldom discoloured by incubation. In my whole collection only one egg is in any way as small as that figured by Dr. Bree, and more than one are all but as large as the egg of the Bald Eagle, figured on the same plate. The colour of the shell in this species when held up to the light is a peculiarly bright sap green, very different from the deep green of *H. leucoryphus*, or the sea green of *Fulvescens*. In size they vary from 2.65 to 3.15 inches long, and from 2.05 to 2.45 broad, but of twenty eggs measured the average was 2.91 by 2.31.”

The adult male has the upper part of the head variegated with brown spots; nape, back, and upper tail coverts ashy brown, a little lighter upon the edge of the feathers; inferior parts, under tail coverts, and legs white, with spots of a light reddish brown, more numerous and nearer together on the neck and chest, less frequent on the belly and sides; cheeks garnished with black hairs; wing coverts similar to the back, with edges of a lighter tint; quill feathers blackish brown; tail white below, above brown, and barred widely with a blackish tint, terminating in a white or whitish edge. Beak ashy black; cere “whitish, with a tinge of bluish grey in places,” (Hume.) Feet

“dirty flesh-colour,” (Draper;) “pale earthy greyish brown,” (Hume.) Iris brilliant yellow.

The adult female has less white on the head, neck, and inferior parts; vertex brown; spots more numerous on the chest and abdomen.

Young birds of the year reddish brown on the head, neck, and chest; spots on the belly closer together; base of all the feathers white, as in the adult; feet greyish or livid.—(Degland.)

The egg figured is from my own collection, and is one of those taken by Mr. Savile Reid at Gibraltar. I have a similar egg sent me by the late Herr Siedensacher from Styria.



LONG-EARED OWL

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus—BUTEO. (*Cuvier.*)

Generic Characters.—Beak small, and curved suddenly at the base; tarsi short; thighs clothed. Wings of medium length, the four first quill feathers hollowed out; the first very short, the second and third shorter than the fourth, which is the longest.—TEMMINCK.

LONG-LEGGED BUZZARD.

Buteo ferox.

<i>Buteo ferox,</i>	GMELIN.
<i>Falco rufinus,</i>	RÜPPELL. BREE, first ed.
<i>Buteo rufinus,</i>	KAUP. GRAY. HODGSON.
“ “	BLYTH. C. BONAPARTE.
“ <i>canescens,</i>	HODGSON; Bengal Sporting Journal, 1836.
“ <i>leucurus,</i>	NAUMANN.
“ <i>longipes,</i>	JERDON; Madras Journal, 1839.
“ <i>rufiventer,</i>	JERDON; Madras Journal, 1841.
<i>The Nasal Falcon,</i>	LATHAM.
<i>Chuha-mar, “Rat-killer,”</i>	HINDUSTANI.

Specific Characters.—Rufous above, dirty white below. Tarsi feathered on their upper third. Eight transverse bands on the tail.

Measurement.—Length of adult male in Norwich Museum twenty-two inches. Length of tarsi three inches.

I INTRODUCED this bird with doubt in my first edition on the authority of Mr. Gurney, who had received skins from the Volga, where it now turns out to breed regularly. I have a large series of eggs taken in South Russia.

“It is,” says Von Heuglin, “a winter visitor along the Nile and southwards to the Arrek, and the lowlands of Abyssinia. It comes

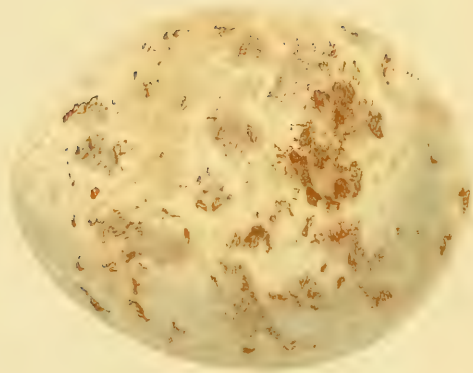
thither in pairs, or families, in August and September. It passes the winter partly in the south of Egypt and Dongolah, and more frequently in Eastern Sennar, Takah, and on the Mareb, and stretches further away in March. Its place of residence varies a good deal—either on bare, isolated rocks, in date forests, in solitary sycamores and boubal trees, in uncultivated fields, on sandy islands, and finally in villages or ruins when they are near dove-cotes, of which, as well as the domestic fowl, it is the most dangerous foe. It is, however, by no means a particular feeder, as it may be seen on rocky stones and earthy hillocks on the look out for mice. In the steppes it catches lizards, on the borders of lakes and morasses frogs, and, according to Adanson, snakes.

If a tract of country looks promising, it chooses a tree standing by itself on a rock for its nightly shelter; and to this it repairs at sunset, with quiet, regular, but rather long flight, always with a well-filled crop. In the forenoon and afternoon it is generally seen making playfully a wide circle in the air. If in search of prey its flight is low, hasty, and at times very rapid and impetuous. It may be ranked among the shyer birds, but it is very easy to shoot when at rest. According to Rüppell, as recorded by Cretschmer, it was frequent in parts of North Africa, and flew towards evening in flocks to the forests, or hid itself in old buildings and rocks. It occurs in South Africa, Tripoli, Asia Minor, eastwards towards Nepaul. It breeds in the south-east of Europe, and the bordering Asiatic steppes."

Mr. Gurney says in a private letter:—"This species is sometimes of a uniform dark chocolate brown all over. I have seen only two such examples, one from India and one from Abyssinia. This is out of at least thirty specimens of the bird which I have at different times seen; whether this is accidental or a regular plumage I cannot tell, but being so rare in proportion to those in the usual dress, I am disposed to consider it an accidental variation."

In India, according to Mr. W. Theobald, as quoted by Hume, the Long-legged Buzzard "lays in the first and fourth weeks of March. Eggs two or three. Shape *ovate* pyriform. Size varies from two inches to two inches nineteen lines in length, and one inch sixty-six lines in breadth. Colour greenish white, or white, blotched with red or claret brown: vary greatly. Nest in large trees; sticks, lined with cotton rags and daubed with mud."

In Palestine Canon Tristram says ("Ibis," 1865):—"We found the nest both on trees and on rocks, generally on the latter. The complement of eggs is two or three, generally the latter. The first nest we took was on Mount Carmel, on a rocky ledge easy of



LONG-LEGGED BUZZARD.

access, on March 22nd., and contained three eggs, quite fresh and beautifully marked; the last fresh eggs we found were a pair near Mount Tabor on May 1st. The eggs are of course larger than, but in no way differently coloured from those of the Common Buzzard. The nest is large, more neatly made than those of the Eagles, well lined with woollen rags and the soft withered leaves of bulrushes and flags, and plastered with mud. The plumage of the Palestine specimen is very rufous, and we shot breeding birds both with and without the bars on their tails."

I have a long series of eggs of this bird taken by Herr Glitzch, and sent to me through Herr Von Heuglin, by whom and the Baron König-Warthaussen they were carefully examined. I mention this because when I in future mention the collector's name, it will be understood that the above eminent naturalists verified every specimen. These eggs vary in size from two inches one line by one inch nine lines, to two inches five lines by two inches. They vary in colour much. The general ground colour is yellowish white, but some of the specimens are pure white, and one which I figure is white distinctly and clearly spotted with purple; some of them are like large Kite's eggs, but these are exceptional, the majority being more or less thickly blotched with brown or rufous. I figure, in addition to the one just mentioned, two others which will give a good idea of the variations in markings.

Of this bird's habits in India we have very interesting accounts by Mr. Jerdon, in the "Madras Literary and Scientific Journal," vol. x., page 76; and by Mr. Hodgson, in the "Bengal Sporting Magazine," 1836, page 181, from which I copy the following:—

Mr. Jerdon says:—"This is certainly a rare bird. I have hitherto only seen it near Jaulnah, perched on low trees, or on the ground in fields or near water, and taking a low but short flight to another similar perch. In the stomach of the specimen I shot there was a cricket. Mr. Elliott, who met with this species only in Guzerat, says:—"This bird evidently preys on field-rats which abound in the sandy soil of this province. He is seen sitting on low trees, or bushes over the rat-burrows, and, watching his opportunity, darts down on his victim. In the stomach of one were the exuviae of a rat, and a large beetle."

Mr. Hodgson writes:—"These birds are very common in the central and northern hilly regions of Nepal, but I never procured one from below. It adheres to the woods when the crops are up, but after harvest comes into the open country, and is seen perpetually perched on a clod and looking out for snakes, which constitute

its chief food. It also preys on rats and mice, and on quails, snipes, and partridges, but is reduced to take the birds on the ground. I have seen it, however, make a splendid stoop at a quail, which, after being flushed, chanced to alight on a bare spot, so as to be visible to the bird as he followed it with his eye on the wing, and marked it settle. Teal, and even ducks, are frequently slain by our bird in the same way. If he can perceive them take wing, even at half a mile's distance, he is up with them in an instant, and is sure to capture them, unless they are under cover in a moment after they touch the earth."

An adult male in the Norwich Museum has the head, nape, throat, belly, and under tail coverts dirty white, with ferruginous and brown markings on the head and neck. Thighs chesnut brown. Back light ferruginous, with dark centres to each feather. Upper wing coverts hair-brown; primaries externally ash-brown, terminating in dark brown; the upper and inner half of each barb white. Tail feathers cinnamon brown, lighter in the centre, and barred slightly above, more strongly below, with eight transverse bands of darker brown.

The figure of this bird is from a drawing by Mr. Reeve, of the Norwich Museum; a male specimen in the splendid collection of which he is the able curator.



DESERT HAWK.

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus—BUTEO. (*Cuvier*.)

DESERT BUZZARD.

Buteo desertorum.

<i>Buteo desertorum</i> ,	DAUDIN; Tr. d'Orn. ii.
“ “	LE VAILLANT; Ois. d'Afrique., pl. 17.
“ <i>cirtensis</i> ,	Idem.
“ <i>Capensis</i> ,	SCHLEGEL.
“ <i>palpinus</i> ,	LICHTENSTEIN.
“ <i>anceps</i> ,	BREHM.
“ <i>rufiventra</i> ,	JERDON.
<i>Falco tachardus</i> ,	BREE, 1st. ed.
<i>Le rougri</i> ,	LE VAILLANT.
<i>African Buzzard</i> ,	BREE; 1st. ed.

Specific Characters.—Plumage of upper parts dark brown; under parts whitish, spotted with brown. Tarsi clothed in front on their upper thirds.

Measurement of adult specimen in Norwich Museum.—Length seventeen inches and three-quarters; from carpus to tip of wing fourteen inches and a half; tarsus three inches.

THIS is another bird which I introduced into the first edition upon the authority of Mr. J. H. Gurney, who has two specimens from the mouths of the Volga in his collection. I have since received its eggs from S. Russia. It occurs also in Portugal and Southern Spain, whence two specimens were brought by Mr. S. Reid and presented to the Zoological Gardens. A specimen, Mr. Gould informs me, was also killed at Everly in Wiltshire in 1864. It is now in the possession of Mr. Gould. Mr. G. also informs me that he has a specimen from Southern Turkey.

Mr. Gurney writes me word, “I am now convinced that I was wrong

in identifying this species with Le Vaillant's *tachardus*, as mentioned in your first edition. That bird was really founded upon a South African specimen of *Pernis apivorus*, as pointed out by the late G. R. Gray. The African Buzzard being in fact "Le rougri" of Le Vaillant." Mr. Gurney considers there is no difference between this bird and that which is named in collections *Buteo cirtensis*, from North Africa. Mr. Gurney came to this conclusion after carefully examining a dozen specimens from the Cape of Good Hope, Mogador, Tangier, Erzeroum, and the mouths of the Volga.

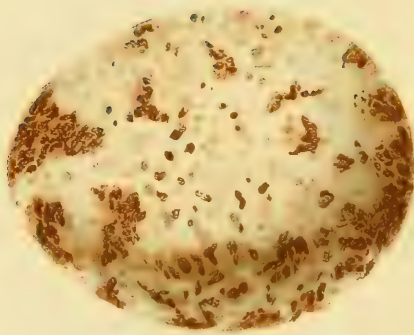
Nepal is its most eastern locality according to Mr. Gurney. It occurs in Southern India and Ceylon.

"The appearance of this bird when alive," says Mr. Gurney, "is less heavy and more elegant than that of *B. vulgaris*. My living specimen, which was dull brown when I bought it a year ago, has moulted into a rich rufous plumage, and one that was alive in the Zoological Gardens a few years ago underwent a similar change."

Buteo desertorum has occurred in Switzerland. It is not resident in North East Africa, but is occasionally seen in winter, spring, and autumn. It has been observed in Western Abyssinia and along the Blue Nile, as well among trees as in plains. Heuglin saw three of these birds in May, 1861, in the small oasis of Ain-Musah. They were very poor in condition, although they had moles, beetles, and grasshoppers to feed upon. They had a few lizards and chameleons in their crops. It is resident in South Africa, not common, but wide-spread (Layard), where it feeds on mice and insects. In this bird the tarsi are feathered nearly half their length, and the foot is more powerful in proportion than in the Common Buzzard. Newly-fledged birds have a rather lively violet metallic hue on the mantle. It occurs in South Africa, Algeria, Western Asia, the Volga region, Smyrna, and occasionally in Switzerland.

Mr. Gurney writes:—"The cere, feet, and tarsi of this Buzzard are lemon-yellow; the iris is sometimes a light hazel and sometimes yellow, probably assuming the latter colour as the bird advances in age; a similar variation, which exists in the iris of the Common Buzzard, is however, not always referable to age, as I have ascertained by experience. The bill is dark lead-colour, but somewhat lighter adjoining the throat and cere."

We are indebted for the drawing from which our figure is copied to Mr. Reeve, of the Norwich Museum. It is taken from Mr. Gurney's living specimen, and consequently represents the rich rufous plumage in which his bird is at the present time. Mr. Gurney has alluded to this change of plumage in an extract I have given above. Le Vaillant's



AFRICAN BUZZARD.

— 1855.

figure closely resembles his description. There is no apparent difference in the sexes.

Mr. Reeve writes:—"The crown of the head, back, and scapularies are dark ashy-brown, each feather having a narrow streak of brown down the centre, shadowed with a rusty red."

The figure of the egg is from a long series in my own collection sent me by Von Heuglin, and collected by Her Gltzch in Southern Russia. The eggs vary a good deal, some being blotched with a lighter brown, others quite white.

The name "African Buzzard" on plate of eggs should be
"Desert Buzzard."

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RAPACES—DIURNÆ.

*FALCONIDÆ.*Genus—*MILVUS.* (*Cuvier.*)

Generic Characters.—Beak straight at the base, curved from the cere to the point; cutting margin with a slight festoon. Nostrils oval, oblique. Wings long: the third or fourth primary longest. Tail long and generally forked. Legs short. Toes short and strong; the outer toe united at its base to the middle toe, but slightly reversible. Claws moderately long and curved.—LACEPEDE.

ARABIAN KITE.

*Milvus Ægyptius.**Falco Ægyptius,*

GMELIN. LE VAILLANT; O. A. pl. 22.

BREE; 1st. ed.

" *Forskahlii,*

GMELIN.

" *parasiticus,*

DAUDIN. LATHAM.

Milvus parasiticus,

KAUP. SCHLEGEL.

" *Ægyptius,*

DEGLAND.

" *Ægyptius,*

GRAY.

Falco ater,

TEMMINCK. VIEILLOT.

" "

CH. BONAPARTE.

Le parasite,

LE VAILLANT.

Specific Characters.—Beak yellowish. Upper half of tarsi clothed with feathers; internal toe shorter than the external, the latter passing much beyond the middle of the median. Tail more forked than in the Black Kite. Length twenty-one inches.—DEGLAND.

Measurement.—Length of adult male in Norwich Museum twenty inches. From carpal joint to tip of wing eighteen inches.

IN the first edition of his "Manual" M. Temminck confounded this with the Black Kite, and the same error was committed by Vieillot,



ARABIAN KITE.

Ch. Bonaparte, and several other ornithologists. In his second edition in 1840, M. Temminck corrected this error, which seems to have arisen from the fact that both birds are equally common at the Cape of Good Hope and in Egypt, and at the same time pointed out that the Parasite of Le Vaillant is easily distinguished from the Black Kite by its stronger and more raised and constantly yellowish beak; by the brighter red colour of the abdomen and thighs of the adult; by the tail being more forked, and the general plumage being coloured in larger masses.

Count Mühle mentions having obtained two specimens of this bird in Greece, in the months of June and August, which had beautiful wax-like beaks,—tolerably stout,—black-banded tails, red brown thighs, and black shafts on the feathers of the abdomen. Degland says that it has also occurred in Dalmatia, and Mr. Gurney in the following abstract, hints that it has been taken in the South of France.

“The African range of this species is much the same as that of *A. gagar*, except that I rather doubt whether it is so common in Egypt, (although one of its synonymes is *M. Ægyptius*.) It is said to occur occasionally in Greece, and also in the south of France. This species when adult, is readily distinguished by its yellowish white bill; but when younger the bill is a brown horn-colour, and in that state it might easily be confounded with the *M. niger*.”

The following is from Von Heuglin's work on the birds of north-east Africa:—“This Kite is spread over the whole of north-east Africa, and was found also on the Arabian coast of the Red Sea—Dahlak—in the Adel and Somali countries, and in Abyssinia as high as twelve thousand feet above the level of the sea. It is resident in Egypt, Nubia, and Abyssinia, on the Upper Nile. It prefers to live in flocks, chiefly in towns, villages, and their neighbourhood, about camps, fishermen's huts, in the routes of caravans, etc. It is not particular where it nests, and it will build on the steeple of a mosque, on the flat roofs of dwelling houses, on ruins, in plantations of palm trees, and in the churchyard. During the day it is seen frequently on market places, slaughter houses, on roads and places where refuse and decayed substances are heaped up. It always turns up near dead animals in company with the Vultures. It will be gathered from this that its food is chiefly carrion, remains of slaughtered animals and their insides, bones, skins, fish, etc., and more rarely young newly-fledged birds. It will also catch rats, mice, reptiles, and even beetles. If it spies a quicker or bolder bird of prey with booty, it throws itself upon its rival, screaming and chasing it away. This equally quick and cunning thief will take a fisherman's goods out of his basket, and meat out of the butcher's stall,

before their very eyes. When it has committed a theft it tries during its flight to tear it up, upon seeing which its companions dash after it with a scream and make it drop a portion, which will, however, invariably be caught before it reaches the ground. During the breeding season the males are very quarrelsome and noisy; this is from February to May, in Egypt. The nest, which is rather lightly put together, and made of dry boughs, is placed mostly on palm trees; but it will also build on the battlements of mosques or fortifications, and on ruins. The number of eggs varies from three to five. They are blue or greyish white, seldom all free from spots; but sometimes the latter are only a few fine rusty brown flourishes and dots, principally at the larger end, mostly, however, having plainer or less distinct spots of the same colour. Length, one inch eleven lines to two inches two lines, by one inch seven to eight lines thick. This bird is spread over the whole of Africa. It occurs also in Asia Minor, Greece, and Dalmatia."

Its eggs are said by Le Vaillant to be four; white ground with red spots; and by Ardouin three or four; yellowish white, entirely covered with confluent brown spots, leaving the ground-work hardly visible.

An adult male in the Norwich Museum has the head, back, and under parts, of a dark cinnamon brown, lighter on the thighs; primaries and tail feathers above dark brown; tail below with nine or ten dark bands; under tail coverts cinnamon.

The female does not differ from the male. When recent the beak is yellowish with the tip black; cere bluish; feet yellow. In the young the plumage is brown and the tail almost square. Adult specimens do not differ much in plumage.

The figure of this bird is from a drawing by Mr. Reeve, of the Norwich Museum. It is taken from a living specimen, in the possession of Mr. Gurney.



BLACK-WINGED KITE.

RAPACES—DIURNÆ.

FALCONIDÆ.

Genus—ELANUS. (*Savigny.*)

Generic Characters.—Beak short, strongly bent from its origin with a very hooked tip; cere very hairy; feet short; tarsi partly feathered; toes divided. Wings long; the first and second quill feathers nearly equal, second longest of all. Tail more or less forked.—TEMMINCK.

BLACK-WINGED KITE.

Elanus melanopterus.

<i>Elanus melanopterus,</i>	DAUDIN. LEACH. KAUP. GRAY.
“ “	LE VAILLANT. SCHLEGEL. GOULD.
“ “	NAUMANN. BONAPARTE. DEGLAND.
“ <i>cæsius,</i>	SAVIGNY.
<i>Falco melanopterus,</i>	LATHAM. DAUDIN. BREE 1st. ed.
“ “	TEMMINCK. SCHINZ.
“ <i>vociferus et sonniniensis,</i>	LATHAM.
<i>Elanoides cæsius,</i>	VIEILLOT.
“ <i>Le Blac,</i>	LE VAILLANT.
<i>Falken Milan,</i>	OF THE GERMANS.
<i>Kupasee or Kapasi, Chanwa, and</i>	
<i>Chanwa Musaher,</i>	HINDUSTANI.

Specific Characters.—Tail not long, nearly square; upper two-thirds of tarsi clothed with feathers; external toe much shorter than the internal, the latter reaching to the anterior third part of the median. Feet and toes, yellow. Iris most brilliant orange red.

Measurement.—Length twelve to fourteen inches.—DEGLAND.

THIS beautiful little Falcon, so well known to ornithologists from Gould's exquisite plate in the "Birds of Europe," is the last of its family which I shall have to introduce into this work. It is an African

species, forming the only European representative of the genus *Elanus* of Savigny.

The little Black-winged Kite is found generally distributed over the Indian continent, and in Africa from south to north. It is common in Egypt, and it occurs in north-east and west Africa, the Island of Zanzibar, Palestine, Syria, Asia Minor eastwards as far as India. According to Layard it is a bird of passage in South Africa.

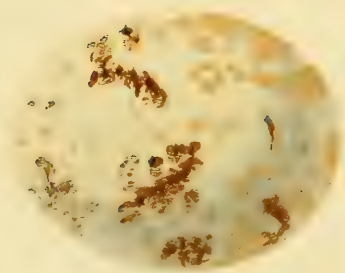
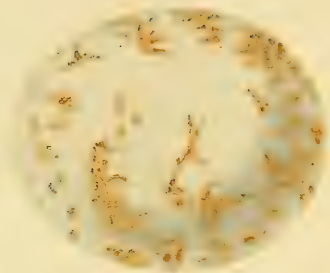
In the north and south of Europe it is an accidental visitor. It has been found in France, Germany, and Spain, and is a periodical visitor, according to Count Mühle, in Greece.

Specimens are recorded by Degland as having been killed at Cassel, in May, 1830. In the Coté d'Or it has been seen in October; and M. Crespon killed an adult male in the same month in the neighbourhood of Nîmes.

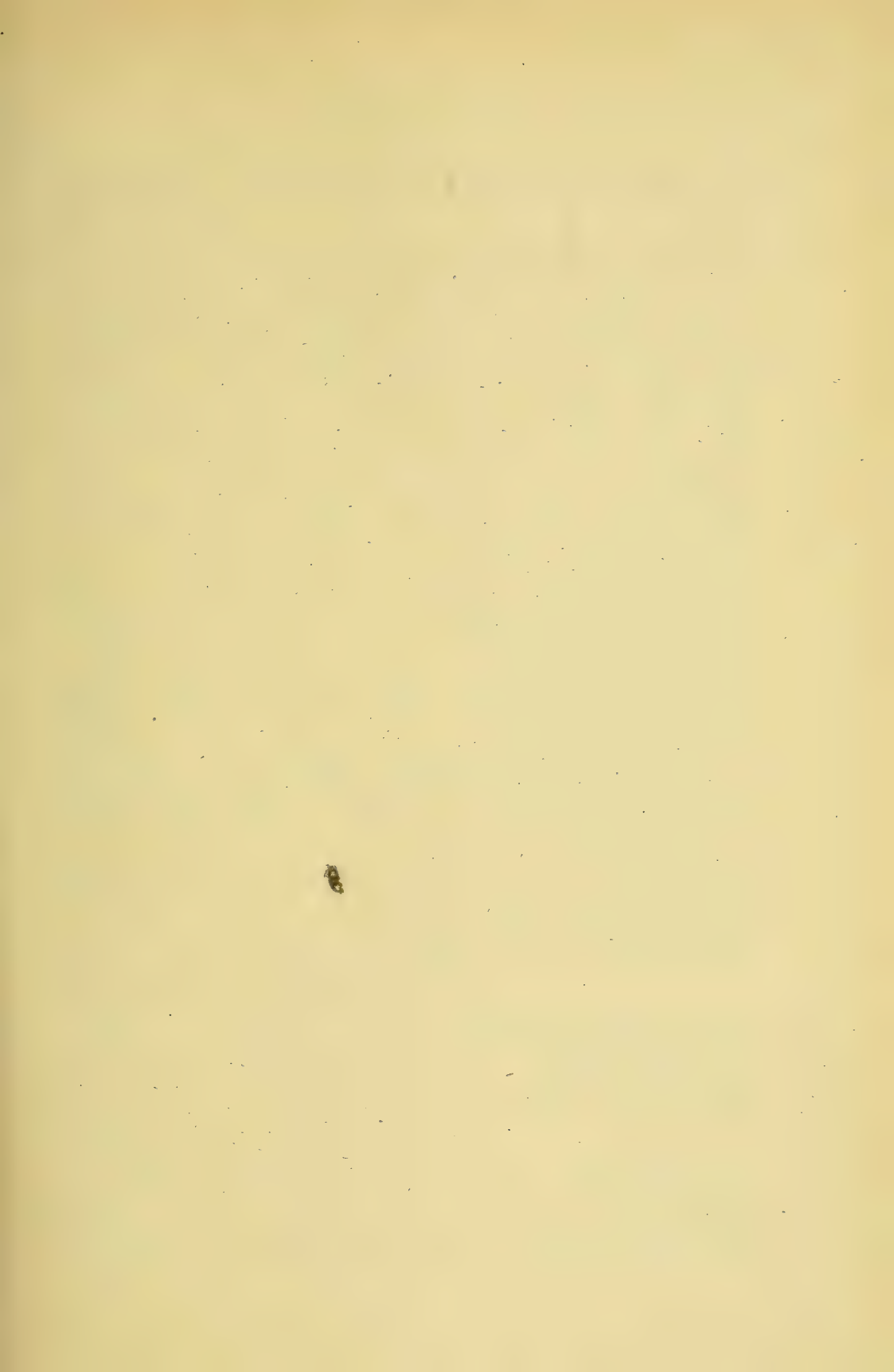
It has not, that I am aware of, ever been known to breed in Europe; and as its habits have been observed only in Africa and Asia, I shall again make extracts from the Madras Literary and Scientific Journal, vol. vi., page 77, in which a notice of its manners is given by Mr. Hodgson, and vol. x., page 71, where I find the following observations by Mr. Jerdon:—

“Though generally spread over India, the Kupasee is by no means common. It is most frequent in woody districts. Its general food is insects, (chiefly grasshoppers and locusts,) lizards, and mice. I shot one in Goomsoor which was devouring the carcase of a dove; this however appeared to have been dead some time, and I doubt if it was killed by the Kupasee. It often frequents long grass and grain-fields, over which it may be seen to hover like the Kestrel.”

Mr. Hodgson says, “The Chanwa or Black-wing quests chiefly in the morning and evening, feeding upon small birds, insects, and mice. It does not usually seize upon the wing, though its hunting be for the most part by continual questing. Commonly it is seen skimming the cultivation like a Circus, occasionally poising itself on the wing for the purpose of getting a distincter view of some mouse, small bird, or insect which has stirred on its beat, and upon which, when clearly perceived, it stoops perpendicularly with the speed of lightning. After a while it will resort to some low roost, and when relieved commence another excursion, or perchance sit and watch there for its prey. Its forward flight is easy, low, and silent, but very effective in evolution when exertion is required to capture such nimble game as mice, which constitute its ordinary food. It frequently whips off insects from the stalks of standing grain, and this feat is of course accomplished on the wing. I have also seen the Chanwa pursue Cuckoos and Sparrows



BLACK-WINGED KITE.



with uncommon energy, but I never witnessed it strike a bird in the air. The Chanwa doubtless can and sometimes does seize its feathered prey on the wing."

I collate the following from Heuglin's "*Ornithologie Nordost Afrika's*:"—"In the old bird, contrary to the description of Schlegel and Naumann, Heuglin says he always found the iris of a deep blood red, and in the younger birds a pink yellow ochre; in the unfledged birds amber brown. The Black-winged Kite is one of the most common birds of prey in Lower and Central Egypt, more rare about Assonan and in the north of Nubia. In the southern parts of Nubia, at Chartoum, in Abyssinia and Takah, the Bogos land, Kordofan, and on the Blue and White Nile it appears less frequently; and, according to Heuglin's observations, only in autumn and winter. It is less frequently seen during winter in Egypt. Its favourite resorts, before all others, are date groves, separate palm and other high trees in cultivated lands, and near the edges of the desert; also on islands of the Nile, in gardens and avenues. The male and female keep together throughout the year, but go out separately in search of food, which consists principally of bats, mice, and grasshoppers; also of desert lizards and birds. It catches the grasshoppers principally in its flight, and swallows them in the air. It will pounce upon small vertebrate animals after it has hovered over them some time from a considerable height in the air. Its flight is never very high nor rapid, but light and moderate. It often circles over stubble-fields and pastures, here and there suddenly halting or again settling on low bushes. It remains through the night on the summits of tall pines, near the stem, and it usually builds its nest in the same locality. Brehm (on the contrary) found the nest in January and March, on low citron and nabaq trees, containing three to five eggs or young. Heuglin found the nest in March and July, on isolated acacias. The nest is somewhat large, and consists of stalks, pieces of turf, palm fibres, and, according to Brehm, is lined throughout with the fur of mice and moles.

The eggs are spotted and streaked irregularly with cherry brown on a greyish white ground, so that the white hardly appears through; length, one inch and a half by fourteen lines. Heuglin once found a nest with three young birds and one bad egg, which last remarkably resembled those of the Sparrow-hawk. The cry consists of a loud-toned and continued piping or whistling."

From Le Vaillant we read, "It rests on the tops of trees, where the pure white of its stomach glistens in the sun; but when it flies it is by its piercing cry that its presence is announced. It lives upon large insects, such as grasshoppers, mantis, etc.; and it chases the Crows

and Magpies which live upon the same kind of food, with much courage from its domicile. It exhales an odour of musk very distinctly. It places its nest, large and wide, in the bifurcation of trees, lining it with feathers and moss, and laying four or five white eggs."

The Rev. H. B. Tristram, in his "Catalogue of Algerian Birds," says of *Falco melanopterus*:—"This beautiful bird is extremely rare in Algeria. A female specimen was the only one obtained during the spring. The egg is interesting as corroborating by its character the position of the species between *Astur* and *Buteo*." It is very rare in British collections.

The adult male and female have the vertex, nape, and mantle ashy grey, lighter on the head. Face, front of neck, and under parts of body pure white, shaded with bluish ash-colour upon the sides of the cheek; eyebrows and a spot in front of the eyes black; wings, when folded, partly black and partly a more or less dark ash-colour, with the carpus and the edge pure white. Tail shaded with grey above, white below; beak black; iris and feet orange yellow.

Young birds.—Colours duller, with the feathers of the upper parts edged with ferruginous red; those of the under parts longitudinally marked with brown streaks or spots; wings slate-coloured, with the coverts and quills ending in a reddish white; tail ash-coloured, tipped with white. When first born they are covered with a reddish grey down; when they leave the nest they have the head, nape, and upper parts of the body of a reddish tint; the chest ferruginous red, and the rest of inferior parts white, very slightly "watered" with a reddish tint. (Degland.)

With the history of this bird that of the *Falconidæ* closes. I have omitted from this edition the Bald Eagle, *F. leucocephalus*, and the Black Kite, *Milvus ater*. The former has not, according to the best testimony, occurred in Europe, and the latter has appeared in England, and is therefore figured by Gould and Professor Newton in their respective works. I have also omitted to give any account of the Indian Spotted Eagle, *Aquila vittata*, which has undoubtedly occurred in Europe, but it is not decided whether this bird or the smaller, *Aquila naevia*, has appeared in England, as will be seen by the following extract from a letter received from Mr. J. H. Gurney:—

"With regard to the Spotted Eagles. I now think that Mr. Brookes is right in saying that it is the *larger* race which is the true *A. naevia* of Gmelin, and that *A. vittata* should be given only as a synonyme of it.

This is the Spotted Eagle of India. The Norwich Museum has also a specimen, said to have been obtained by Sir Stamford Raffles in

Sumatra. Lord Walden has a specimen from Burmah, and Mr. Dresser tells me that it occurs in Eastern Siberia.

The Norwich Museum has specimens from Cairo, Beyrout, Smyrna and Sarepta, on the Volga, and Mr. Dresser has specimens from Albania, which is the most western locality I have yet seen it from, and there the smaller race *also* occurs.

It has not yet been satisfactorily made out whether it is the larger or the smaller race which has occurred in the British Islands.

The smaller race, of which the head-quarters are Eastern Germany, appears to be *Aquila maculata* of Gmelin, and I now think should stand under that name.

This race when adult does not differ perceptibly from the Indian *A. hastata*, but it differs much from it when immature.

In its ³nestling stage of dress it is spotted with exactly the same character of spots as the young bird of the larger race, the spots on the young *A. hastata*, being much smaller and much more clustered along the whole length of the wing-bones, especially along the surface of the carpal bone.

In its second year's dress *A. hastata* is much striated below, a plumage which I have never seen in *A. maculata*.

I therefore believe *A. maculata* to be specifically distinct from *A. hastata*, but even were it otherwise, the name "*maculata*" would have priority, being one of Gmelin's, and the other being Lesson's."

The additions to the *Falconidæ* in this edition are, the Northern variety of Sociable Vulture, *V. nubicus*, instead of *V. auricularis*; three Imperial Eagles instead of one, *Aquila Culleni*, Striated Eagle, and the pretty little miniature Peregrine *Falco barbarus*.

N. Gabar, *Buteo desertorum*, and *Aquila nævioides* are omitted by Gray in his hand-book, while *F. tanypterus* is separated from *F. lanarius*, and admitted as a distinct species, and *F. badius* is not a European species.

ORDER I.—RAPACES.

DIVISION II.—RAPACES—NOCTURNÆ.

Family *STRIGIDÆ*. (*Bonaparte.*)Genus—*SYRNIUM*. (*Savigny.*)Sub-genus—*PTYNX*. (*Blasius.*)

Generic Characters.—Head without tufts; bill slightly bending from the base. Nostrils large. Facial disc large and complete; auditory opening defended by an operculum. Wings short and rounded; the first quill feather very short, the fourth the longest. Tail long, concave beneath. Legs and toes feathered; claws curved, long, and sharp.

URAL OWL.

*Syrnium Uralense.**Syrnium Uralense,**Strix Uralensis,*

“ “

“ *liturata,*“ *macroura,**Chouette de l'Oural,*

PALLAS. NAUMANN. GOULD.

PALLAS. GMELIN. TEMMINCK.

SCHLEGEL. BREE, first ed.

RETZIUS. VIEILLOT. DEGLAND.

NATTERER. MEYER AND WOLF.

OF THE FRENCH.

Specific Characters.—Head large and much feathered; facial disc round; eyes small; tail very long and tapered; plumage grey brown, not tawny, varied with white above; white spotted longitudinally with brown below. Length twenty-three inches; spread of wings three feet nine inches; tail twelve inches, extending beyond the closed wings five inches, long and pointed: first quill shorter than tenth, second equal to seventh, third rather shorter than sixth, fifth longest.—WHEELWRIGHT.

THE Owls form a family perfectly distinct and natural. In their external form, in their internal anatomy, and in their habits, they are placed by the wisdom of their Creator in a group isolated among the families of the feathered tribes.



URAL OWL.

Linnæus and Cuvier, and after them Temminck, formed but one genus of these birds in their systems of classification. Modern ornithologists have divided them into at least eleven. Without any change in my opinion as to the true scientific value of this splitting up of genera, expressed in the first edition, I have thought it best to make the nomenclature I use as much as possible in accordance with other works on ornithology, and in fact in general use among ornithologists. I have adopted this plan in the preceding pages, and shall carry it out through the work.

Professor Newton, in his edition of Yarrell now publishing, has adopted a new system of classifying the Owls which is formed in the work of Dr. Sclater and Mr. Salvin. This classification is founded upon—

(a) A division of the family into those which have the hinder margin of the sternum characterized by two or more clefts, which is by far the most common.

(b) Those in which the margin of the sternum is sinuated entirely or slightly so.

The first division is further subdivided into (c) Owls which possess an operculum, and (d) those which do not.

This arrangement throws our old friend the Barn Owl out of the genus *Strix*, of which it has of late years been the sole European representative, and into that of *Aluco*, while the Tawny takes its place, and Tengmalm's Owl and the Long and Short-eared Owls will come under different genera in the same group. I only allude to this arrangement here. Before another edition of this work is called for the scientific world may have become agreed how to arrange them.

The Ural Owl is a native of the Arctic regions. It is common in Lapland and the Ural Mountains. According to Meisner, as quoted by Temminck, it inhabits, though in small numbers, the cantons of Berne and the Soleure; and M. Michaelles has reported its having been several times killed in the environs of Salzbouurg. It is found in the north of Sweden, is not uncommon in Livonia and Hungary, and is seen rarely in the eastern parts of Germany. It seems to be pretty nearly confined to these districts, occurring very accidentally in any other part of the world.

"The Ural Owl," says "The Old Bushman" in his "Ten Years in Sweden," "is certainly the rarest of all Scandinavian Owls, and never appears to go so far north as the Lap Owl. It is rarely, however, met with in the south of the country. In April, 1864, I shot a remarkably fine female in South Wermland, and I do not think it was ever killed so far south before. I do not believe it is met with in

Lapland. It is included in the Danish fauna, but I think on very doubtful authority. My description (see specific characters) is from a fresh killed specimen, a thing very few naturalists have had the opportunity of observing. Eye dark (appeared bluish black), not as generally depicted bright yellow. Of its breeding habits (at least in Scandinavia) nothing is known, and I do not believe any collection contains a well authenticated egg of this bird."

M. Schinz, who saw the bird alive said by Meisner to have been found in the cantons of Berne and the Soleure, is of opinion that it was only a variety of *Strix aluco*, the Tawny Owl of the British list.

The Ural Owl preys principally upon birds and small animals, which towards the close of day it may be seen looking out for, among the wild forests of the desolate regions in which it lives. It builds its nest in the holes of trees, and lays four or five eggs, which are like the rest of the genus, obtuse, and of a pure glossy white.

The Ural Owl was first discovered by Pallas, in his "Journey into Russia in 1776," and is described by Lamarck in the Appendix to the French edition of the "Voyage," page 29. Dr. Latham has the following description of this bird in his "Synopsis," vol. i., page 168, sp. 37, in which he has closely followed Pallas:—Bill colour of wax; eyelids and irides black; feathers surrounding the eyes cinereous, encircled with black and white feathers, and reaching quite from the forehead to the throat; colour of the upper part of the body not unlike that of *Strix aluco*, but paler, and with scarce any undulations on the feathers; the parts beneath, except a few slender lines, are quite white; rump white; the outer edge of the three outer quills serrated the whole of their length; fourth and fifth serrated likewise, but only at the ends; first quill shortest; tail cuneiform, and longer in proportion than in *S. aluco*; legs covered with dirty white down.

Young birds of the year, according to Temminck, have the ground plumage light grey brown, with the upper parts spotted irregularly with ashy brown and light red, varied by white ovoid spots; the under parts marked with spots and longitudinal stripes of ashy brown; wings streaked transversely with grey; tail with seven transverse bands of a whitish ash-colour.

According to Middendorf, Siberian specimens are darker and more distinct in colour, and smaller in size than the European.

The Japan bird, *Strix fuscescens*, is a distinct species, and Mr. Gurney writes me "it is a remarkable link between *S. Uralense* and *S. aluco*."



RAPACES—NOCTURNÆ.

STRIGIDÆ.

Genus SYRNIUM. (*Savigny.*)

LAP OWL.

Syrnium cinereum.

<i>Syrnium cinereum,</i>	GMELIN. BAIRD. RICHARDSON AND SWAINSON in Faun. Bor. Amer., pl. 31.
<i>Strix Lapponica,</i>	RETZIUS. TEMMINCK.
“ “	SCHLEGEL. BREE; 1st. ed.
“ <i>barbatum,</i>	PALLAS.
“ <i>fuliginosa,</i>	SHAW.
<i>Great Grey Owl,</i>	BAIRD.

Specific Characters.—Plumage grey, spotted and striped with brown and russet above; white, with dashes of brown below. Length of specimen in Norwich Museum twenty-four inches; from carpus to tip of wing seventeen inches.

MR. GURNEY, in the “Ibis” of 1867, p. 465, says it is quite certain that the North European and North American Owls, which pass under the name of *S. Lapponicum* and *S. cinereum* are perfectly identical. Prof. Newton, “Ootheca Wolleyana,” admits their very close alliance, but G. R. Gray, “Hand-List,” vol. i., p. 48, gives them as distinct.

I have however adopted Mr. Gurney’s view, and of course Gmelin’s name of *cinereum* must replace that of *Lapponicum*, I have however retained our English name Lap Owl.

The range of the Lap Owl is confined to Lapland, Greenland, and the northern parts of North America.

An interesting account of this bird is given in Richardson and Swainson’s “Fauna Boreali Americana,” published in 1841, where it

is described at great length and minuteness by Swainson. The following is Dr. Richardson's account:—

"This bird is the largest of the North American Owls; it was first described by Latham in his "Synopsis," page 134. It is by no means a rare bird in the fur countries, being an inhabitant of all the woody districts lying between Lake Superior and latitude 67 or 68, and between Hudson's Bay and the Pacific. It is common on the borders of Great Bear Lake, and there and in the higher parallels of latitude it must pursue its prey during the summer months by day-light. It keeps however within the woods, and does not frequent the barren ground like the Snowy Owl, but hunts principally when the sun is low; indeed it is only at such times when the recesses of the woods are deeply shadowed, that the American hare and the marine animals, upon which it chiefly preys, come forth to feed. On the 23rd. of May I discovered a nest of this Owl built on the top of a lofty balsam poplar, made of sticks and lined with feathers. It contained three young, which were covered with whitish down. We got them by felling the tree, which was remarkably thick; and whilst this operation was going on, the two parent birds flew in circles round the objects of their care; keeping however so high in the air as to be out of gunshot: they did not appear to be dazzled by the light. The young ones were kept alive for two months, when they made their escape. They had the habits common also to other Owls, of throwing themselves back and making a loud snapping noise with their bills when any one entered the room where they were kept."

To this account Mr. Swainson adds, "This bird has the posterior half of its bill covered with cere, rounded or swelled out on the sides, and very slightly arched on the ridge; the curved point moderately compressed, much resembling that of *Strix brachyota*. Its auditory concha is much larger than that of *S. (Bubo) Virginiana*, but very considerably less in proportion than that of *S. brachyota*, though the operculum is larger than in this bird."

Although described as common in the fur country by Richardson, it is rare in the United States. Audubon only records two instances of its capture, and he saw it once or twice. His figure of the bird is taken from an unusually large female, thirty inches long and forty-eight inches and a half across the wings, in the Gardens of the London Zoological Society. The following is his account of the habits of one of the specimens captured alive, as related in his "American Ornithology," vol. iv., page 364:—

"No where common in America, but ranges from the north-east coast of the United States to the source of the Columbia River. One

1. CAPE EARED OWL. 2. LAP OWL.

3. EGYPTIAN EARED OWL,

From a drawing by Heughlin.

of these birds was taken alive, February, 1831, at Mablehead, Massachusetts. I went to Salem to see it, but it had died, and I could not trace the remains. Mr. Ince, in whose keeping it had been for several months, fed it on fish and small birds, of which it was very fond. It uttered at times a tremulous cry, not unlike that of *Strix Asio*, the Little Screech Owl, and shewed a great antipathy to cats and dogs.

The comparatively small size of this bird's eyes renders it possible that it hunts by day, and the marked smallness of its feet and claws leads me to think that it does not prey upon large animals."

This last inference of Audubon is not in accordance with the account given by Dr. Richardson, nor of that by Pennant, in his "Arctic Zoology," vol. ii., page 232, who says, "Feeds on mice and hares. Flies very low, and yet seizes its prey with such force that in winter it will sink into the snow a foot deep, and with great ease will fly away with the American hare alive in its talons. It makes its nest in a pine tree in the middle of May, with a few sticks lined with feathers, and lays two eggs spotted with a darkish colour. The young take wing the end of July. Length two feet, extent four."

With regard to this remark of Pennant, that the eggs were "spotted with a darker colour," there is no doubt that it is a mistake, and that some adventitious spots, probably of dirt or blood, had existed on the eggs which he described. I believe there is no exception to the family characteristic of the Owl's eggs—they are all of a pure white.

Mr. Wolley, whose great zeal and practical knowledge as a naturalist I have had occasion to notice before, has found the nest and taken the eggs of the Lap Owl in Lapland, and I have much pleasure in quoting here an abstract of his paper, published in the Proceedings of the Zoological Society for March, 1857, page 56:—

"Two nests of the Lap Owl were found in Finnish Lapland, in 1856. In one near Sodankyla there were two eggs, and when one of the birds was shot, a third egg was found ready for exclusion. It was placed on the jagged end of the stump of a large Scotch fir, about twelve feet from the ground, at which spot the tree had been snapped across by some storm, the upper part not yet entirely separated, but sloping downwards till the greater part of its weight was supported by the ground.

The other nest was near Annasjoki, at the top of a lowish Scotch fir. Some time previously in the same year a bird had been shot at this spot, which was found to be a female with eggs inside. The nest was not observed until after the shot was fired. At the second visit, on the 28th. of May, there were two eggs in the nest, and again a bird was shot, which turned out to be another female, with a fully-

formed egg inside, through which the bullet had passed. The skin is now in England. The birds seemed on both occasions remarkably fearless.

The eggs are smoother, and, as might be expected, considerably smaller than those of the Eagle Owl. The dimensions of the two in the last-mentioned nest are 2 in. by 1.6., and 2.1 in. by 1.65 in.

At the Meeting of Scandinavian Naturalists in Christiana, last summer, before I heard of these two nests having been found, I was able to announce that the Lap Owl generally makes its nest on the top of a stump. I had received several reliable accounts from different woodsmen, but had never found a nest myself, or been able to get the eggs, which indeed have, I believe, hitherto been unknown to ornithologists. It appears that three is the ordinary number of eggs."

In his Catalogue of Eggs, sold by Mr. Stevens, in 1858, Mr. Wolley accounts for the proportionate smallness of the egg, by the fact that the size of the Lap Owl is very much made up by an unusual quantity of feathers, with which it is provided to protect it against the extreme cold of the region in which it lives. He also says the number of eggs is four.

Mr. Wheelwright, in "Ten Years in Sweden," remarks, "The home of this rare and most beautiful of all the northern Owls is the very north of Scandinavia, from whence it rarely wanders, although I once obtained a very fine specimen killed in the winter in South Wermland. It is a true forest Owl, and is never seen higher up on the fells than the limits of the forests; nest generally on a pine or high fir, whether made by itself or not I do not know, but probably not."

The male and female of the Lap Owl have the upper parts grey, with brown and reddish spots or streaks in zigzags, and others white on the scapularies. Under parts and under tail coverts whitish, slightly tinged with a reddish tint; sides of the chest are irregularly covered with numerous longitudinal brown spots and transverse zigzag lines or stripes; the legs and feet are striped in the same way with brown and white; face streaked with brown upon a bluish grey ground, and encircled by feathers variegated with black, white, or red; quill feathers crossed transversely with ash-coloured bands, variegated on the inner barbs by irregular lines of a reddish tint, and others of dark brown; towards the end of the quill feathers the colours are darker. Tail brown, crossed by wide ash-coloured bands, spotted and striated irregularly with brown; beak yellow, a great part of it hidden by the feathers of the face.

The Lap Owl has been figured by Dr. Richardson in "Fauna Boreali Americana;" Audubon, "Birds of America;" Gould, "Birds of Europe;" and Nilsson, in his "Fauna Scandinavia."

I am able to give a figure of the egg from my own collection. It was taken in Lapland by Mr. Wolley's collector, Knoblock, and with one other came into my possession in 1873. I have also two from Kittila in Lapland, sent to me by Dr. Meves of Stockholm. Knoblock's eggs measure two and a quarter inches by one and five eighths inches, and two and three sixteenths by one and a half inches. They are pure glossy white, the smaller having one or two nest stains like the smaller egg in "*Ootheca Wolleyana*."

RAPACES—NOCTURNÆ.

STRIGIDÆ.

Genus—GLAUCIDIUM. (*Boie.*)Sub-genus—MICROPTYNX. (*Kaup.*)

Generic Characters.—Nostrils in the middle of a swollen cere, prolonged and tubular; wing short; first quill shorter than the fourth, emarginate; fourth and fifth quills about equal; tarsus and toes well-developed; plumage distinctly banded.—BOIE.

LEAST EUROPEAN SPARROW OWL.

Glaucidium passerinum.

<i>Glaucidium passerinum,</i>	BOIE; Isis, 1826.
“ “	BREHM; Vög. Deut., i., p. 108, t. 8, f. 1.
“ “	C. BONAPARTE. 1838.
<i>Strix pusilla,</i>	DAUDIN; Traité d' Ornithologie, ii., p. 205, 1800.
“ “	SCHLEGEL. DEGLAND. BREE; 1st. ed.
“ <i>passerina,</i>	LINNÆUS; Fauna Suecica and Systema Naturæ, 1761.
“ <i>acadica,</i>	GMELIN; Syst., 1788.
“ “	TEMMINCK; Man., 1820.
“ “	SCHINZ; Europ. Faun., 1840.
“ <i>pygma,</i>	BECHSTEIN; Naturg. Deut., ii., p. 978, 1801.
“ “	VIEILLOT.
<i>Surnia passerina,</i>	KEYSERLING AND BLASIUS; p. 32, 1840.
<i>Athene passerina,</i>	GRAY.
<i>La Chevechette,</i>	LE VAILLANT; Ois: d' Afrique, pl. 46.
<i>Petite Chouette d' Uplande,</i>	
<i>and Chouette d' Acadie,</i>	OF THE FRENCH.
<i>Gemeiner Sperlingskauz,</i>	OF THE GERMANS.

Specific Characters.—Upper part of body greyish brown, punctured with white spots. Inferior parts whitish, with longitudinal brown markings. Tail



feathers marked with four or five large white spots on the inner barb, smaller on the outer, forming in the male four white bands, and in the female three. The smallest of European Owls. Length, male six inches, female about seven inches.

IN the first edition this bird was described under the name given to it by Daudin, in consequence of the great confusion occasioned by the real Linnæan name of *S. passerina* being applied to the well-known Little Owl, now, I hope, effectually settled down in life as *Carene noctua*, by Professor Newton in his new edition of "Yarrell's Birds of Great Britain." I trust naturalists will never forsake this name, and allow the bird I am about to describe to be equally well-known as *Glaucidium passerinum*, the real *Strix passerina* of Linnæus.

Temminck adopted Latham's name, *S. acadica*, to designate this bird; but it is quite certain that the *S. acadica* of Latham is the North American species, a bird not known in Europe, and named, as Mr. Newton suggests, after its habitat Acadie, that is, Nova Scotia.

There are several "Little Owls" which may, more or less, be confounded with each other. I will briefly notice some of these, so that the ground may be cleared, I trust, of all obscurity or doubt:—

G. passerinum.—The subject of the present notice, and the synonymy of which I have given at length above. The *S. passerina* of Linnæus.

S. psilodactyla of Linnæus, Brehm, and Degland; the *S. passerina* of Gmelin, Latham, Meyer, Wolff, Temminck, Vieillot, Schinz, and the English authors. *S. noctua* of Retzius and Schlegel. *Noctua passerina* of Cuvier, *Athene noctua* of Gray, and *Carene noctua* of Newton. This bird, the Little Owl of the English lists, is readily distinguished from *G. passerinum* by its greater size, shorter tail, different disposition of colours, and by the shortness of the feathers on the tarsi, and the substitution of down for feathers on the toes. It is figured by Edwards, Lewin, Gould, Yarrell, and others. It is fully one third larger than *passerina*.

S. acadica of Gmelin, and *S. acadensis* of Latham. A North American species, well figured by Wilson in his "American Birds," and afterwards by Audubon, pl. 199. Figured also by Latham in his "General Synopsis," vol. i., pl. 5, fig. ii.; and described at length by Swainson, in the "Fauna Boreali Americana," Birds, p. 97, in which its distinction from any of the European species is clearly established. This is the *Nyctale acadica* of Bonaparte, and of Gray's list; it is designated *Strix passerina* by Wilson, and *Ulula acadica* by Audubon.

Athene perlata, figured and described by Le Vaillant, in his "Oiseaux d' Afrique." This is the *Noctua occipitalis* of Cuvier, the *Strix perlata*

of Vieillot, and the *S. occipitalis* of Temminck.

This beautiful species is apparently but little larger than *G. passerinum* when Le Vaillant's two drawings are compared. It is in fact, however, altogether, particularly in the head, a large formed bird. It is readily distinguished by this character alone when the skins are examined together. In addition the white spots are shaded with black, so as to give them the appearance of pearls, and hence Le Vaillant's name, *Chevechette perlata*; the tarsi and toes are covered with down instead of feathers; the primaries are barred with three bands of russet on a black ground, and the spots on the tail form seven white bands.

In addition to the above I may mention *Surnia passerinoides* of Audubon—"The Little Columbian Owl"—which is about the size and has a good deal of colouring similar to that of *passerina*, but it is darker, and the white spots on the head and wing coverts are replaced by chesnut. Those on the tail feathers are like *passerina*, largest on the inner barb, but they form six white rather curved bands; the tarsi and toes are feathered as in *passerina*. It is a closely allied but perfectly distinct species. I need not say anything about the other two South American Sparrow Owls, *Athene nana* and *A. pumila*, as they are not likely to be confounded with *G. passerinum*.

G. passerinum is an inhabitant of North-eastern Europe. It is stated by Degland to occur in North America, but I believe this to be a mistake. It is excluded from the American list by C. Bonaparte, and is not, that I am aware of, described by any of the American authors. It has doubtless been often confounded with the *Strix acadica* of that continent. It is found in Lapland, Sweden, Finland, Denmark, the Carinthian Alps, Switzerland, and rarely in the north of Germany. It is included by Nilsson in the Scandinavian Fauna, under the name of *Sparfs uggle*.

Mr. Wolley says that as far as he is aware no small Owl, except *Strix tengmalmi*, occurs in Lapland. Degland says, however, "*J'ai reçu un sujet de la Suisse, et deux autres (male et femelle) de la Laponie, par l'entremise de M. Sundevall.*"—Eur. Orn., vol. i., page 137. It is, however, quite certain that this little Owl occurs in Lapland as well as Sweden.

The following account is contained in a letter I received from the late Mr. Wheelwright, dated Gardsjö, March, 1863:—"I have been in the forest lately, and found out more about this little Owl. It certainly breeds with us, and not sparingly, and I do hope to get you the nest this year. I have a live one now in a cage, and a most amusing pet it is. Although diurnal in its habits, it seems to sit very still until evening and very early morning. As far as I can make out

this is the earliest bird in our forests; for the old poachers who go out before daybreak to shoot the Capercaillie on the perch in the spring, say that the first call-note they hear in the wood is that of this bird. They also say that as soon as they hear this in the spring they reckon it will not be long before the Capercaillie begins to 'lek' or play.

The note of this little Owl is a whistle,—one long loud 'whe-e-e,' like blowing into a key, then a number of finer notes, not so loud, quickly repeated—'Tiweet, tiweet, tiweet, tiweet.' I have heard it till this spring. One night early in March I slept at a wood-watcher's cabin in the forest, and my host came into my room about 5 a.m., and told me to come out and hear it. The bird was in a fir plantation about eight hundred or one thousand yards from the house, and I distinguished the note very plain. I stole up quietly and identified the bird. I had often heard the sound before, and always took it for Tengmalm's Owl; so to make quite sure I shot it. It must have a large range in Scandinavia, for as you know I shot a family of young flyers at Quickiock, and I do not believe that this place is its most southern range, although they have never been found breeding in Scania, (nor for the matter of that can I learn that any one has really got authentic eggs,) and are very rare or only accidental in Denmark.

They are very bold and voracious for their size, and I have more than once seen them strike down a Titmouse in the forest. Although we know nothing for certain of their breeding habits, we may take it for granted that they lay more than two eggs, as stated by Temminck; for out of the family I saw at Quickiock, I obtained four specimens, and I am not certain but that one escaped."

According to Temminck, this little Owl feeds upon mice, grasshoppers, beetles, and lepidopterous insects. It builds in pine forests, or in the crevices of rocks, and lays two white eggs.

An adult male in my possession has the head and nape brown, covered thickly with white spots; wings darker brown with the spots larger; shoulders white; cheeks and cere grey, with dark sinuous bands; side of neck white; throat same as head. Upper part of chest laterally brown with darker transverse bands. Upper part of centre of chest, abdomen and flanks, white with longitudinal more or less broad bands of dark hair brown. No facial disk. Tail brown, with four white bands and white tips; beak lead colour tipped with yellow; tarsi thickly feathered; the toes covered with small feathers; iris bright yellow. The sexes are alike in plumage but the female is rather larger. The young have the throat white, and the upper parts of chest entirely brown. Head, back, and wings, less spotted than in the adult.

My figures, male and young, are from skins sent me by the late

Mr. Wheelwright, and were shot by him at Quickiock in Lapland; he says he thinks that it occurs occasionally in Denmark, but is common in Finland. The lower figure is the old bird.

It has been figured by Le Vaillant in "Ois. d' Afrique," pl. 416; Gould, pl. 50; Nilsson, "Faun. Scan.," pl. 3; Naumann, pl. 43; Dresser, "Birds of Europe," pl. 15, but with a facial disk, which my specimens have not, either in their youth or old age.



RAPACES—NOCTURNÆ.

STRIGIDÆ.

Genus—BUBO. (*Dumeril.*)Sub-genus—ASCALAPHIA. (*J. Geoffroy.*)

Generic Characters.—Bill short, strong, curved, compressed at the point; nostrils pierced in the cere, large, oval or rounded. Facial disc incomplete about the eyes. Auditory opening small oval, without an operculum. Wings rather short, concave; the third and fourth quills generally the longest. Legs and toes covered with feathers; claws long. Head furnished with two tufts of feathers.—DUMÉNIL.

EGYPTIAN EARED OWL.

Bubo ascalaphus.

<i>Bubo ascalaphus,</i>	SAVIGNY. GRAY.
“ “	AUDUBON.
<i>Strix ascalaphus,</i>	VIEILLOT. TEMMINCK.
“ “	DEGLAND. BREE, 1st. edn.
<i>Otus ascalaphus,</i>	CUVIER.
<i>Ascalaphia Savignyi,</i>	GRAY. TEMMINCK ET LAUG, pl. col. 57.
<i>Hibou à huppes courtes,</i>	OF THE FRENCH.
<i>Kurzöhriger Uhu,</i>	OF THE GERMANS.

Specific Characters.—Head rather small; beak slender and hidden; facial disc incomplete; two tufts very short, just behind the eyes; tarsi long, feathered to the toes; two glabrous scales at the extremity of the hind toe.

Length nineteen inches.—DEGLAND.

THIS Owl was first described by Savigny in his work upon the Birds of Egypt, published in 1809. It is a species confined almost entirely to Africa, but having been accidentally found in Sicily and Sardinia, it has obtained a place in the European list of Birds. It was stated by Pennant to have been taken in Scotland.

In the first edition I described this bird, as identical with the Indian form *Bubo Bengalensis*, according to Mr. Gurney's opinion, though with doubt. That gentleman is now certain that the two birds are distinct species. This will save me the necessity of referring to the Indian bird, and from the trenchant criticism of Mr. Hume.

With regard to its occurrence in Europe, there is but little to say, except that Mr. Howard Saunders saw a specimen of it at Naples, which was said to have been shot near that town. (*Ibis*, 1869.) And Lord Lilford was informed by Senor Graells, that he had met with it in Catalonia. *Ibis*, 1866.

In the *Ibis* for 1869, Mr. E. C. Taylor records the occurrence of this bird at Mimieh in Egypt, where he killed three or four specimens. In the same *Journal* for 1860, the Baron König Warthausen gives the observations of Von Heuglin in Upper Egypt, but though I shall quote this gentleman himself presently, yet as the Baron's remarks apply merely to its nidification, I copy them here. "It breeds in Lower Egypt, where Wilke found two nests on the Pyramids of Abusir and Sakara on the 22nd. and 27th. of March, 1858. Each of the cavities scratched in the sandy surface in a shadowy but not dark locality contained three fresh eggs."

"The eggs of one brood are more elongate, those of the other more rounded; all having a regular form, the greatest diameter passing through the centre, and the profile descending, the poles sometimes in a more gentle, sometimes in a more abrupt elliptical curve. The length varies between twenty-two and twenty-four lines, the breadth between eighteen and a half and twenty; the largest specimen is twenty-four lines long and twenty broad, the smallest twenty-two long and nineteen broad; the weight is forty-eight to sixty grains. They differ from the eggs of *Bubo maximus* in their smaller size and finer grain. The largest specimens of *Syrnium aluco* do not attain to the smallest eggs of our species; whilst the largest eggs of *B. ascalaphus* equal those of *Surnia nyctea*. The eggs of the latter species, however, differ in their greater height and in their grain, the tubular prominences in our species being more separated, and not quite so flat and the pores being relatively larger and deeper and sometimes forming congregated groups."

The Rev. Canon Tristram observes, (*Ibis*, 1865, p. 262:)—"*Bubo ascalaphus* is the most common Owl of Palestine, next to *Athene Persica*, and like it, it adapts itself to the ever varying physical geography of the country. In the rolling uplands of Beersheba it resorts to burrows in the ground, at Rabbath Ammon it has its home among ruins; in the ravines of Galilee and the Ghor it retires in security to the

most inaccessible caverns. Mr. Upcher shot one which dashed out of a cave, as we were climbing for Griffons' nests, in the Wady Haman, and with the other barrel brought down a Woodcock which arose from another cave at the same time. We had two eggs brought to us near the Jabbok which could only have belonged to this bird. In the uplands of Beersheba it is very common, and I have frequently put it up at noon-day. It invariably disappeared into some burrow after a short flight." Mr. Gurney has received specimens "from Magodar, which is probably its most westerly limit."

I collate the following from Heuglin's "Orn. Nord. Ost. Afrika's:"—The Egyptian Owl has its home among the ruins and rocky hollows of Egypt, especially in the vicinity of Djizeh and in the valley of the royal tombs at Thebes. It is a resident, and seen usually in pairs. It comes out of its hiding-place at night, and feeds on bats, mice of the desert, rats, etc. It goes south as far as the middle of Nubia. It breeds in March and April in clefts of rocks and ancient Egyptian tombs. It lays two or three stumpy, oval, clear white eggs, one inch ten lines to two inches long, and one inch eight lines to nine thick. It was never seen by Heuglin resting on trees, only on rocks and ruins. If taken young it soon becomes tame. The down of the young is brownish grey. It occurs in Algeria, where it also breeds; in Tripoli, south of Europe, Asia Minor, and Persia(?).

In the adult the body, wings, and tail are of a reddish white, variegated in different shades, and covered with spots and streaks of a black brown, lanceolate upon the head and nape, in great blotches on the wings, and in large bands or narrow zigzags on the primaries and tail quills. On the chest these marks are in the form of elongated drops, and upon the other inferior parts, of fine transverse zigzags; tail transversely barred with four or six narrow streaks of a blackish brown; under parts white; throat and middle of chest white; tarsi very long, clothed as well as the toes with a whitish down; beak black; iris yellow.

Bubo ascalaphus is figured by Cuvier in the "Regne Animal.;" Temminck, Gould.

RAPACES—NOCTURNÆ.

STRIGIDÆ.

Genus—OTUS. (*Cuvier.*)Sub-genus—PHASMOPTYNX. (*Kaup.*)

Generic Characters.—Head with two tufts more or less elongated. Beak curved, bending from the base; cere large; under mandible notched; nostrils oval and oblique. Facial disk complete. Auditory opening large, covered by an operculum. Wings long; the second quill feathers generally the longest. Legs and toes feathered to the claws.

CAPE EARED OWL.

*Otus capensis.**Otus capensis,*“ *Helvolus,*“ *candida,*“ *tangitanus,*

SMITH: Illus. of S. African Zoo., pl. 67.

LICHTENSTEIN.

KAUP.

BONAPARTE. (*var. a.*)

Specific Characters.—Quills rufous, barred broadly and tipped for an inch and a half with rich dark hair brown. Tail feathers marked in a similar way. Tarsi clothed down to toes with yellowish white feathers. First primary shorter than second, third and fourth longer than the fifth and sixth, which is the shortest in the wing. Length thirteen inches. Carpus to tip of wing eleven inches. Tail five inches and a half.

IN the first edition I wrote as follows of this bird:—“My attention has been drawn by Mr. Gurney, to the following extract from “*Nau-
mannia*,” a German ornithological periodical, for 1852:—

“*Strix capensis*, Smith, (not Lath.,) occurs as a stationary bird along the coast of Northern Africa, from Tangier as far as Morocco, in broken and marshy low grounds, exactly like our *Strix brachyotus*. A friend of mine, M. Garstensen, C. M., in Copenhagen, who was staying in Tangier as ornithological collector during the last winter months,



SCREECH OWL

and who has recently returned with many well-prepared birds' skins and eggs, assured me that this Owl inhabited also the neighbouring coasts of Spain, and that he had observed it upon its flight to and fro, an assurance which, given by so intelligent as well as conscientious and truth-loving a man, leaves no doubt whatever; the more so since M. Garstensen, a son of the former consul in Morocco, where he was himself born and educated, is thoroughly acquainted with the language of the natives, and he at the same time conferred upon the subject with a French collector."

Mr. Gurney thinks the bird alluded to was the *Otus capensis* of Smith, "Birds of South Africa," plate 67, as he has frequently received this bird from Tangier.

Since then this bird has been shot six or seven times by Colonel Irby in Spain at Casa Viega, about fifty miles west of Gibraltar, beyond Tarifa, as recorded by Lord Lilford in the P.Z.S. for 1870, p. 2, and, as I have been further informed by Mr. Savile Reid, from Gibraltar. Lord Lilford says, "from what I can make out this bird migrates northward irregularly in the autumn. Colonel Irby found five or six in a marsh in October, 1868, and has since failed to find them or hear of them in that locality, or elsewhere in Spain, in spring or summer. It is not a common bird near Tangier." Mr. Howard Saunders says he first had positive information of this in 1867, a specimen having been obtained near Utrera. Mr. Saunders goes on to remark, "the first notice of this bird's occurrence in Spain at all, occurs in 'Naumannia, 1832,' translated in 'Bree's Birds of Europe,' vol. i., pp. 133-5."—(Ibis, 1871, p. 65.)

This bird does not appear to be common anywhere, except on the Zambesi region of eastern tropical Africa, where Dr. John Kirk says, "It is a common Owl in the clumps of trees bordering the valley over the grass plains near which it hunts during the dark of evening in search of small animals."—(Ibis, 1864, p. 317.)

Mr. Layard says of it in South Africa, "Rare, and only found in marshy places, usually gregarious. It conceals itself during the day amongst long grass or reeds, etc. It preys upon water insects, mice, and lizards. Dr. Smith gives no locality for this bird, which must be very scarce, as no specimen has ever fallen under my observation from any part of the colony. Mr. Gurney includes it in his list of birds procured at Natal, by Mr. Ayres, Ibis, 1862."—From "Birds of South Africa," page 43.

Subsequently however, writing in the Ibis for 1869, on "South African Ornithology," Mr. Layard says, "I met with several of *Otus capensis* at Maghtwaght, the residence of Mr. Alexander Van der

Byl, near L'Agulhas; they inhabited a dry valley, their colour resembling exactly that of the dead grass and rushes."

An adult specimen, which I figure from my collection, has the upper parts of the head, back, upper tail coverts, breast, and lesser wing coverts, reddish brown, intermingled with numerous yellow streaks. Abdomen pale ochreous yellow, prettily barred with sinuous bands of a darker colour. Under tail coverts and legs down to toes yellow. Primaries brown, barred with three or four broad bands of ochreous yellow. Secondaries brown, indistinctly barred and broadly tipped with light yellow. Under parts of wings rich yellow, darker below with two dark brown bands in the middle, and merely variegated towards the shoulder. Tail brown, barred with yellow, forming with the middle and outer feathers, five bands and a broad tip; feathers ten. Facial disk light grey, with darker feathers intermingled. Forehead and throat, marbled brown and white; chin white; collar dark; eyebrows and part of cheek below dark blackish brown. Claws very long and strong.

I am not able to give any particulars of the nidification of this bird. I can give the figure of its egg, however, from Mr. Savile Reid. It was procured with the bird which is in my collection, from Mr. G. Alcese, of Tangier.

With this bird I terminate my description of the European Owls. Schlegel has admitted into the Catalogue another small Owl, under the name of *Strix noctua meridionalis*, the *S. noctua* of Forskal, *Noctua glaux* of Savigny, and *S. passerina* of Rüppell. This is however generally believed by naturalists to be only a pale variety of our Little Owl, (*Strix noctua*.) It is found in Spain and Egypt. Most naturalists have also admitted into the list *S. nebulosa*, the Barred Owl of Pennant, a North American species, well described in "Fauna Boreali Americana," and in Audubon's and Wilson's works. It is said to have been taken in the extreme north of Europe, but I can find no authentic account of its capture. It is admitted with great doubt by Degland, and omitted by Schlegel. It does not appear to have been observed in Europe, but was admitted into the Catalogue by an error in the name.

END OF VOL. I.

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